

**FEDERAL EXPRESS**

Ms. Beverly McKeone  
Division of Air Quality  
WV Department of Environmental Protection  
301 57<sup>th</sup> Street SE  
Charleston, WV 25304-2345

Date: February 16, 2017

Subject: **Permit Determination (replacing PD16-070)**

Dear Ms. McKeone:

Attached is Permit Determination Form for Line #1 Texin De-Bottlenecking Project. Per communication from the WVDEP on February 16, 2017 this will replace PD16-070.

Also attached are the questions/comments from our original permit writer and our response to the same.

If you or your staff have any questions or comments please feel free to contact me at 304-451-2431.

Yours Sincerely,

A handwritten signature in blue ink, appearing to read "Mary Ann Henderson".

Mary Ann Henderson.  
Manager, Regulatory Affairs

Covestro LLC  
17595 Energy Road  
Proctor, WV 26055-1299  
USA

Mary Ann Henderson  
Regulatory Affairs  
Manager

Telephone  
304-451-2431



**west virginia department of environmental protection**

Division of Air Quality  
601 57<sup>th</sup> Street SE  
Charleston, WV 25304  
Phone 304/926-0475 • FAX: 304/926-0479

Jim Justice, Governor  
Austin Caperton, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

February 03, 2017

Mary Ann Henderson  
17595 Energy Road  
Proctor, WV 26055

**RE: Permit Determination PD16-070 - No Decision**  
Covesto LLC; Proctor Plant, Marshall County, WV  
Plant ID No. 051-00009; Determination No. PD16-070

Dear Ms. Henderson:

The writer could not determine if a permit was needed or not for your proposed Phase 1, 2 and 3 Extruder Line #1 Replacement Project. This determination is based on the information submitted to the Division of Air Quality (DAQ) in your Permit Determination Form (PDF) received on December 21, 2016.

The following additional information needs to be submitted in writing to help the writer reach a permit "needed"/ "not needed" decision:

1. Please update the process flow diagram in Attachment B to show any pollutant emission points. If a emission point is permitted, its label should be the same as in the permit. If an emission point vents inside a building, please label it as such.
2. List all existing control equipment (such as baghouses, filters, scrubbers, absorbers, etc.) and associated removal efficiencies for the equipment involved in Phases 1, 2 and 3 of your proposed project.
3. By what percentage will the final product increase by as a result of using the larger extruder?
4. What are the current permitted pollutant (PM, VOC, HAP) limits for equipment to be updated by the proposed project? Will pollutant limits be exceeded because of increases resulting from the proposed project?
5. Are the other two (2) extruder lines going to be modified in the next five (5) years?

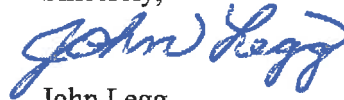
6. Please explain in greater detail about the synthetic HAP minor mentioned in the permit determination.
7. Please offer additional information/explanation related to the following statements in Attachment E, Calculations - Phase 1:

Since the blower sizes will not increase, it is anticipated that this project will not impact particulate emissions. The pellets are constantly recycled through out the system 24 hours per day. Hence, the emissions are dependent on the air handling equipment and not the amount of product flowing through the system. Since the air handling will not increase the emissions will remain unchanged.

Be sure to provide information on all control equipment involved with the air handling system. If the amount of product is increased and the same air handling system(s) is used, would the concentration of PM within the system increase such that an inline dust collection system(s) could collect more PM emissions than at the lower product production rate.

Please resubmit a new PDF when you have collected all pertinent information before the anticipated installation date. A PDF can be obtained from the WVDEP website at <http://www.dep.wv.gov>. Should you have any questions, please contact the undersigned engineer at (304) 926-0499 Ext. 1257.

Sincerely,



John Legg  
DAQ Permit Writer

## **Response to Comments Dated February 3, 2017**

### **PD16-070**

Covestro is in receipt of the comments re: Permit Determination PD16-080 dated February 3, 2017 and received February 6, 2017. The following is a response to the comments. Where indicated the responses are also included in the revised PD

- 1. Please update the process flow diagram in Attachment B to show any pollutant emission points. If emission point is permitted, its label should be the same as in the permit. If an emission point vents inside a building, please label it as such.**
- 2. List all existing control equipment (such as baghouses, filters, scrubbers, absorbers, etc.) and associated removal efficiencies for the equipment involved in Phases 1, 2 and 3 of your proposed project**
- 4. What are the current permitted pollutant (PM, VOC, HAP) limits for equipment to be updated by the proposed project? Will pollutant limits be exceeded because of increases resulting from the proposed project?**

Response to Comments #1, #2 and #4 The equipment numbers, process vent points and control equipment are now included on the Process Flow Diagram (Attachment B). A list of the vent points along with a discussion of the current permitted limits are also found in the General Process Overview. As in the original PD application a proposed change in the permit limit found in Section 8 of the Title V permit was requested.

- 3. By what percentage will the final product increase by as a result of using the larger extruder?**

Response to #3 This confidential information is included in Attachment E

- 5. Are the other two (2) extruder lines going to be modified in the next five (5) years?**

Response to #5 There are no plans to increase capacity in the other extruders during the next five years. This is reflected in the current capital spending forecast.

**6. Please explain in greater detail about the synthetic HAP minor mentioned in the permit determination.**

Response to #6 From 2001 through 2007 Covestro (at the time named Bayer MaterialScience) shut down more than 40% of their New Martinsville plant site.. These shutdowns were permanent and the units were demolished. The units that were closed contributed more than 50% of the site-wide HAP emissions. The site examined the remaining sources and in 2008 requested from WVDEP the status of HAP synthetic minor source for the remaining site.

Since some of the units did not have "modern" Reg-13 permit with enforceable limits, the WVDEP agreed to use the Title V permit as an instrument to control HAP emissions below 9.4 TPY of any single HAP and 24.4 TPY of total HAPS. These total limits with appropriate monitoring equipment were included in the Title V permit (beginning with the one issued in May of 2008) as Conditions 3.1.10, 3.2.1, 3.4.4 and 3.5.10. This is discussed in the Title V Fact Sheet R30-05100009-2008.

In addition to the total HAP limitations described above, individual sections of the Title V permit list unit specific HAP emission limits and associated methods of calculations. For the Texin unit the specific conditions from the current Title V permit (R30-05100009-20138.1.8, 8.2.2, 8.4.4 and 8.4.5.

As described in PD16-070 application Covestro is requesting that the Line #1 emission factor be increased to 0.029 lb/unit (Condition 8.4.5) and the total limit to 0.24 tpy. These changes will not impact the facility-wide HAP requirement contained in Conditions 3.1.10 and 3.2.1 of the Title V permit since annual HAP emissions are typically less than 5 tons.

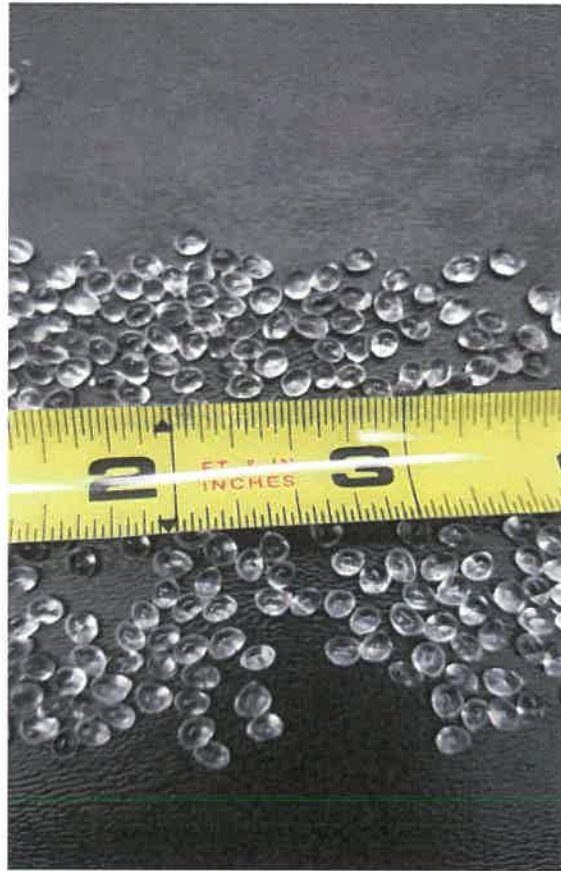
**7. Please offer additional information/explanation related to the following statement in Attachment E, Calculations - Phase 1:**

***"Since the blower sizes will not increase it is anticipated that this project will not impact particulate emissions. The pellets are constantly recycled though out the system 24 hours per day. Hence, the emissions are dependent on the air handling equipment and not the amount of product flowing through the system. Since the air handling will not increase the emissions will remain unchanged. "***

**Be sure to provide information on all control equipment involved with the air handling system. If the amount of product is increase and the same air handling system is used, would the concentration of PM within the system increase such that an inline dust collection system could collect more PM emissions that at the lower product production rate.**

Response to #7 The product silos are equipped with blowers that utilize air to constantly recycle the Texin pellets in order to keep the product dry. Air is also used to convey the pellets from the extruders to the silos and then to the packaging lines.

While one would expect an increase in emissions if the product was a powder, but this is not the case. These pellets are rather large. Since they are cut underwater no particulates are present when they enter the silo and the main source of PM is from abrasion of the pellets during the recycle operation. A picture of the Texin pellets is shown below

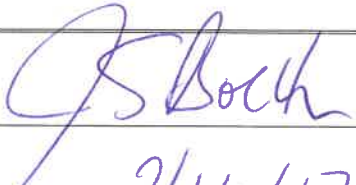


Since the air handling equipment is not changing in size, the amount of pellets that is able to be moved by the air stream is unaffected and the fines generated by any particulate abrasion is constant.

Covestro 17595 Energy Road Proctor West Virginia 26055	Responsible Official: Jeffrey S. Bolton Plant Manager Phone: (304) 455-4400 Fax: (304) 451-2950
Confidential Information submitted by: M. A. Henderson      Phone: (304) 451-2431 Title: Manager, Regulatory Affairs	

Reason for Submittal of Confidential Information:
Required by inventory

Identification of Confidential Information	Rationale for confidential claim	Confidential Treatment Time Period
Process and tank throughputs	Proprietary Information	Until Notified

Signature of Responsible Official Signature:	
Date:	2/16/17

**Note:** Must be signed in BLUE INK



WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
DIVISION OF AIR QUALITY  
601 57<sup>th</sup> Street, SE  
Charleston, WV 25304  
Phone: (304) 926-0475  
www.dep.wv.gov/daq

**PERMIT DETERMINATION FORM  
(PDF)**

FOR AGENCY USE ONLY: PLANT I.D. # \_\_\_\_\_

PDF # \_\_\_\_\_ PERMIT WRITER: \_\_\_\_\_

1. NAME OF APPLICANT (AS REGISTERED WITH THE WV SECRETARY OF STATE'S OFFICE):

Covestro

2. NAME OF FACILITY (IF DIFFERENT FROM ABOVE):

3. NORTH AMERICAN INDUSTRY  
CLASSIFICATION SYSTEM (NAICS)  
CODE:

**3 2 5 2 1 1**

4A. MAILING ADDRESS:

17595 Energy Road  
Proctor, WV 26055

4B. PHYSICAL ADDRESS:

17595 Energy Road  
Proctor, WV 26055

5A. DIRECTIONS TO FACILITY (PLEASE PROVIDE MAP AS ATTACHMENT A):

The facility is located on State Route 2, approximately 7 miles north of New Martinsville, WV

5B. NEAREST ROAD:  
State Route 2

5C. NEAREST CITY OR TOWN:  
New Martinsville

5D. COUNTY:  
Marshall

5E. UTM NORTHING (KM):  
514.5

5F. UTM EASTING (KM):  
4397.3

5G. UTM ZONE:  
17

6A. INDIVIDUAL TO CONTACT IF MORE INFORMATION IS REQUIRED:  
Mary Ann Henderson

6B. TITLE:  
Regulatory Affairs Lead

6C. TELEPHONE:  
304-451-2431

6D. FAX:

6E. E-MAIL:  
Maryann.henderson@covestro.com

7A. DAQ PLANT I.D. NO. (FOR AN EXISTING FACILITY ONLY):

**0 5 1 - 0 0 0 0 9**

7B. PLEASE LIST ALL CURRENT 45CSR13, 45CSR14, 45CSR19  
AND/OR TITLE V (45CSR30) PERMIT NUMBERS ASSOCIATED  
WITH THIS PROCESS (FOR AN EXISTING FACILITY ONLY):  
R13-2507

7C. IS THIS PDF BEING SUBMITTED AS THE RESULT OF AN ENFORCEMENT ACTION? IF YES, PLEASE LIST:

No

8A. TYPE OF EMISSION SOURCE (CHECK ONE):

☐ NEW SOURCE    ☐ ADMINISTRATIVE UPDATE  
☒ MODIFICATION    ☐ OTHER (PLEASE EXPLAIN IN 11B)

8B. IF ADMINISTRATIVE UPDATE, DOES DAQ HAVE THE  
APPLICANT'S CONSENT TO UPDATE THE EXISTING  
PERMIT WITH THE INFORMATION CONTAINED HEREIN?

☐ YES    ☐ NO

9. IS DEMOLITION OR PHYSICAL RENOVATION AT AN EXISTING FACILITY INVOLVED?    ☒ YES    ☐ NO

10A. DATE OF ANTICIPATED INSTALLATION OR CHANGE:

5/1/2017

10B. DATE OF ANTICIPATED START-UP:

10/1/2017

11A. PLEASE PROVIDE A DETAILED PROCESS FLOW DIAGRAM SHOWING EACH PROPOSED OR MODIFIED PROCESS EMISSION  
POINT AS ATTACHMENT B. See Attached

11B. PLEASE PROVIDE A DETAILED PROCESS DESCRIPTION AS ATTACHMENT C. See Attached

12. PLEASE PROVIDE MATERIAL SAFETY DATA SHEETS (MSDS) FOR ALL MATERIALS PROCESSED, USED OR PRODUCED AS  
ATTACHMENT D. FOR CHEMICAL PROCESSES, PLEASE PROVIDE A MSDS FOR EACH COMPOUND EMITTED TO AIR. See  
Attached



**13A. REGULATED AIR POLLUTANT EMISSIONS:**

⇒ **FOR A NEW FACILITY**, PLEASE PROVIDE PLANT WIDE EMISSIONS BASED ON THE POTENTIAL TO EMIT (PTE) FOR THE FOLLOWING AIR POLLUTANTS INCLUDING ALL PROCESSES.

⇒ **FOR AN EXISTING FACILITY**, PLEASE PROVIDE THE PROPOSED CHANGE IN EMISSIONS BASED ON THE PTE OF ALL PROCESS CHANGES FOR THE FOLLOWING AIR POLLUTANTS.

*PTE FOR A GIVEN POLLUTANT IS TYPICALLY BEFORE AIR POLLUTION CONTROL DEVICES AND IS COLLECTED BASED ON THE MAXIMUM DESIGN CAPACITY OF PROCESS EQUIPMENT.*

POLLUTANT	HOURLY PTE (LB/HR)	YEARLY PTE (TON/YR) (HOURLY PTE MULTIPLIED BY 8760 HR/YR) DIVIDED BY 2000 LB/TON
PM		
PM <sub>10</sub>		
VOCs	0.0542	0.1937
CO		
NO <sub>x</sub>		
SO <sub>2</sub>		
Pb		
HAPs (AGGREGATE AMOUNT)	0.0125	0.0547
TAPs (INDIVIDUALLY)*		
OTHER (INDIVIDUALLY)*		

\* ATTACH ADDITIONAL PAGES AS NEEDED

**13B. PLEASE PROVIDE ALL SUPPORTING CALCULATIONS AS ATTACHMENT E. See Attached**

*CALCULATE AN HOURLY AND YEARLY PTE OF EACH PROCESS EMISSION POINT (SHOWN IN YOUR DETAILED PROCESS FLOW DIAGRAM) FOR ALL AIR POLLUTANTS LISTED ABOVE INCLUDING INDIVIDUAL HAP'S (LISTED IN SECTION 112[b] OF THE 1990 CAAA), TAP'S (LISTED IN 45CSR27), AND OTHER AIR POLLUTANTS (E.G. POLLUTANTS LISTED IN TABLE 45-13A OF 45CSR13, MINERAL ACIDS PER 45CSR7, ETC.).*

**14. CERTIFICATION OF DATA**

I, JEFFREY S. BOLTON (TYPE NAME) ATTEST THAT ALL THE REPRESENTATIONS CONTAINED IN THIS APPLICATION, OR APPENDED HERETO, ARE TRUE, ACCURATE, AND COMPLETE TO THE BEST OF MY KNOWLEDGE BASED ON INFORMATION AND BELIEF AFTER REASONABLE INQUIRY, AND THAT I AM A **RESPONSIBLE OFFICIAL**\*\* (PRESIDENT, VICE PRESIDENT, SECRETARY OR TREASURER, GENERAL PARTNER OR SOLE PROPRIETOR) OF THE APPLICANT.

SIGNATURE OF RESPONSIBLE OFFICIAL: \_\_\_\_\_

TITLE: GENERAL PLANT MANAGER

DATE: 2 / 16 / 17

\*\* THE DEFINITION OF THE PHRASE 'RESPONSIBLE OFFICIAL' CAN BE FOUND AT 45CSR13, SECTION 2.23.

**NOTE: PLEASE CHECK ENCLOSED ATTACHMENTS:**

☒ ATTACHMENT A   ☒ ATTACHMENT B   ☒ ATTACHMENT C   ☒ ATTACHMENT D   ☒ ATTACHMENT E

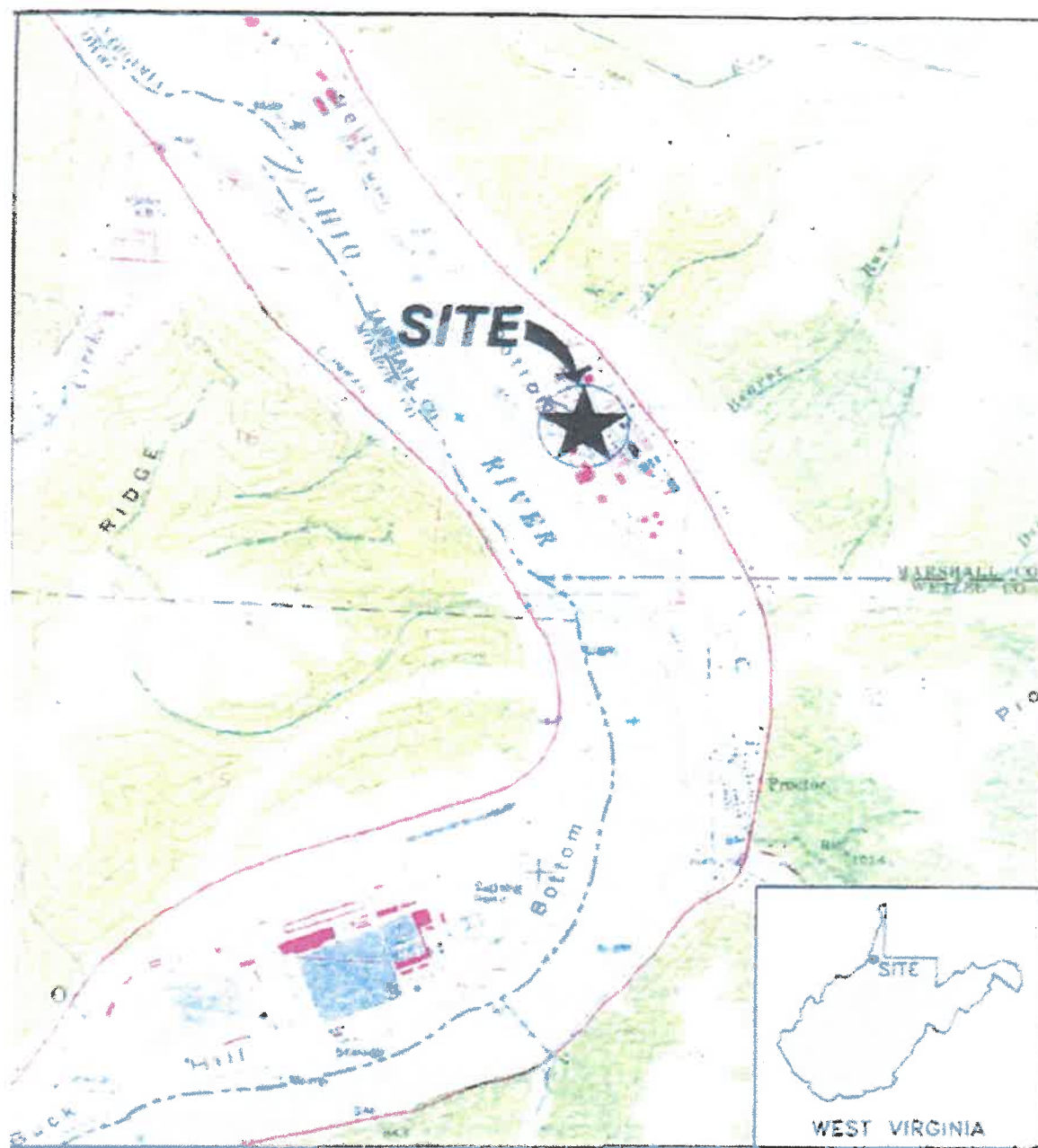
RECORDS ON ALL CHANGES ARE REQUIRED TO BE KEPT AND MAINTAINED ON-SITE FOR TWO (2) YEARS.

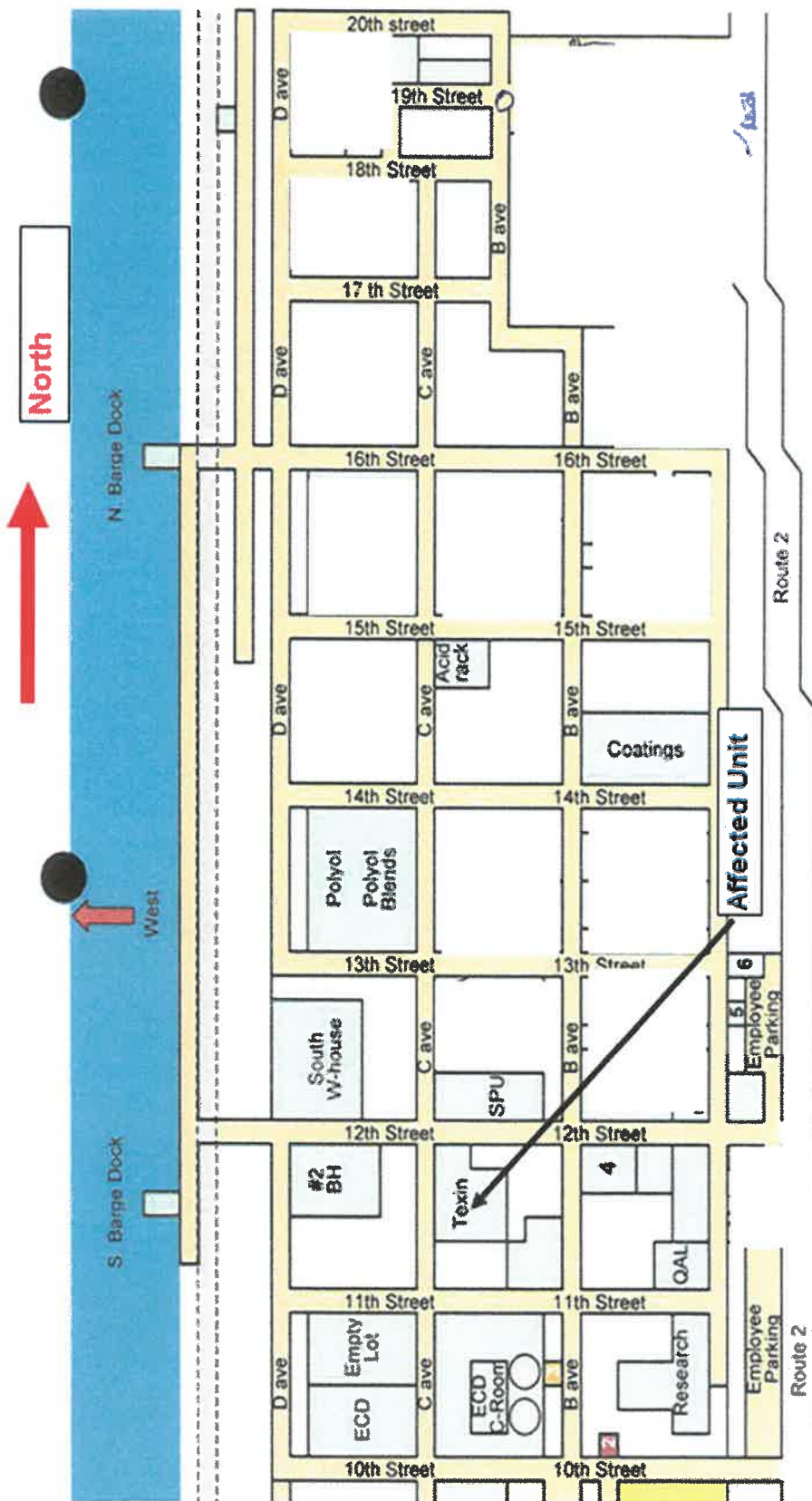
THE PERMIT DETERMINATION FORM WITH THE INSTRUCTIONS CAN BE FOUND ON DAQ'S PERMITTING SECTION WEB SITE:

[www.dep.wv.gov/daq](http://www.dep.wv.gov/daq)

**ATTACHMENT A**  
**Maps**

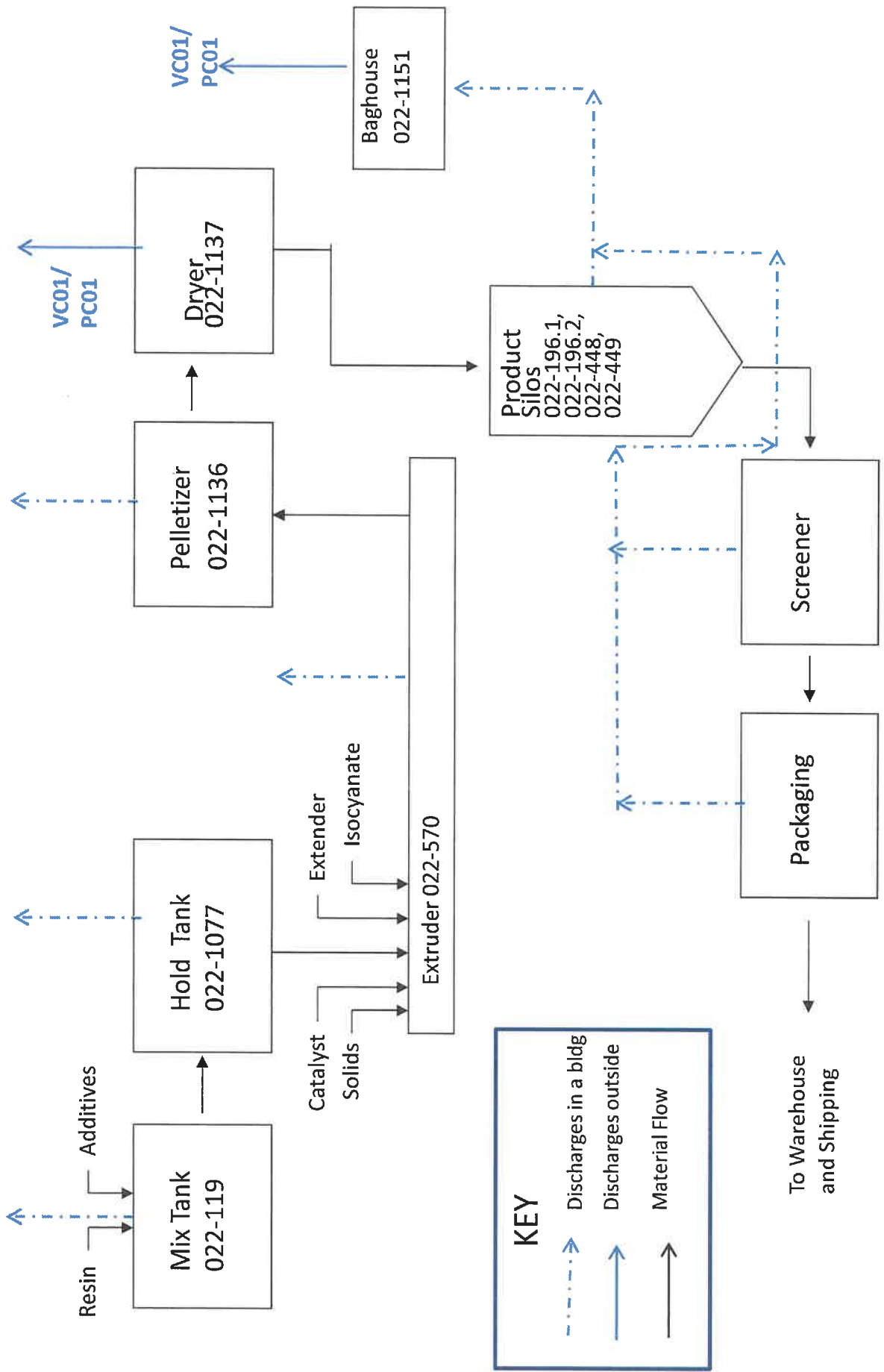
## ATTACHMENT A-1, Location of Site





**ATTACHMENT B**  
**Process Flow Diagram**

ATTACHMENT B – PROCESS FLOW DIAGRAM



**ATTACHMENT C**  
**Process Description**

# GENERAL PROCESS OVERVIEW - TEXIN

## Product Description

TEXIN® TPU (Texin) is a solid thermoplastic urethane (TPU) whose name comes from the process:

<b>T</b>	-	<b>T</b> ransfer molding
<b>EX</b>	-	<b>EX</b> trusion
<b>IN</b>	-	<b>IN</b> jection molding

Texin materials bridge the gap between rubber and plastics. These materials are available in grades that go from very soft and flexible to very rigid. Many grades comply with FDA food-contact regulations. Typical uses are automotive instrument panels, caster wheels, power tools, sporting goods, medical devices, and a variety of extruded film, sheet and profile applications.

## Process Description

The New Martinsville site produces TEXIN via a continuous batch operation. Distinct and identifiable production lots are produced by three reactive extruder lines. The following process description, although typical for all three extruder lines, will focus primarily on products produced on Line 1, which is the focus of the current project.

The three primary raw materials for the production of Texin are an isocyanate (monomeric MDI), a resin (polyether) and the chain extender (1,4-Butanediol). All three primary components, as well as additional small quantity additives, are ratio flow controlled using the Delta V distributed control system (DCS).

- MDI is supplied from a central storage tank and is either fed into the prepolymer line (equipped with mixing elements so it can combine with the resin) or be fed directly into the liquid feed nozzle.
- The chain extender, 1,4-Butanediol, is also fed into the extruder either directly to the liquid feed nozzle or through the prepolymer line depending on whether the TPU product is produced.
- Polyether resin (PTMEG1000) is charged into a mix tank using weigh cells. Additives such as catalysts and UV stabilizers are manually added to the mix tank. The contents of the mix tank are agitated and transferred to the hold tank then the resin run tank. Subsequently the resin is charged to the extruder.

Once these three materials are combined in the front end of the extruder, the feeds react to form the TPU. The extruder contains zones or blocks that are temperature controlled. Based upon which TPU product is being produced, temperature profiles across the extruder are in the range of 220° - 500°F (104° - 260°C).

The liquid TPU exits the extruder and flows through a die plate. As the liquid exits the die plate it is pelletized using a motor-driven set of blades cutting against the die plate face. Extruder Line 1 utilizes a Gala underwater pelletizing system where a continuous flow of water moves across the cutter blades and die plate face eliminating air emissions.

The pellets are then sent to the dryer. Depending on the specific product the pellets may be dusted with a small amount of wax as they pneumatically conveyed to a storage silo. From the silo the pellets are pneumatically conveyed to the packaging area.



**List of Typical Raw Materials** (SDS's included in Attachment D)

mMDI  
PTMEG1000  
1,4 Butanediol  
Octanol  
Acrawax  
Licowax  
Irganox 1010  
Epoxol 9-5

**List of Typical Products** (SDS's included in Attachment D)

Texin DP-1049  
Texin 990  
Texin 990R  
Texin 950  
Texin 950LW  
Texin 985

### Process Equipment and Vent Points Affected by Proposed Project

Description	Equipment #	Vent ID	Control Device	Permitted Limit
Mix Tank	022-119	Vents into bldg	None	Combined limit * -
Hold Tank	022-1077	Vents into bldg	None	Combined limit *
Pelletizer	022-1136	Vents into bldg	None	Combined limit *
Dryer	022-1137 and 1138	VC-0/PC01	None	Combined limit *
Product Silos (4)	022-196.1, -196.2, 448, 449	Vents to Baghouse	Baghouse (022-1151)	
Screener and packaging			Baghouse (022-1151)	
Baghouse	022-1151	VC01/PC01		PM - 0.32 lb/hr and 0.00432 tpy

\* Combined limit for all of Line #1 is shown in conditions 8.1.8 and 8.4.5 of the Title V permit R30-051000009-2013. Condition 8.4.5 states that the limit for Line #1 is 0.0135 lb HAP/unit produced. This corresponds with the limit stated in Condition 8.1.8 that "... the combined HAP emissions for Lines #1, 2 and 3 is 0.2 tpy...."

#### Baghouse Description and Limits

The baghouse is a fabric filter with a control efficiency of 99.7%. There is no Reg-13 permits associated with the silo or the baghouse (Most recent agency correspondence is PD05-092, dated August 2, 2005). The PTE for each silo is listed as 0.08 lb/hr and 0.35 TPY. Consequently, the sum of the particulate matter from the four affected silos is 0.32 lb/hr and 1.44 TPY prior to the baghouse. After the control device the emissions are 0.001 lb/hr and 0.00432 TPY.

**Proposed Project**

The planned project has three phases:

	Description	Proposed Installation Start Date	Proposed Operation Date
Phase 1	Debottle-neck the packaging system	May 2017	June 2017
Phase 2	Replace the current Line #1 extruder with a larger one	June 2017	October 2017
Phase 3	Utilize a larger storage tank for resin; one that is capable of accepting loads from rail cars	June 2017	August 2017

The emission impact is discussed in Attachment E - Calculations

**ATTACHMENT D**  
**MSDS**

# MATERIAL SAFETY DATA SHEET



Bayer MaterialScience

Bayer MaterialScience LLC  
Product Safety & Regulatory Affairs  
100 Bayer Road  
Pittsburgh, PA 15205-9741  
USA

## TRANSPORTATION EMERGENCY

CALL CHEMTREC: (800) 424-9300  
INTERNATIONAL: (703) 527-3887

## NON-TRANSPORTATION

Emergency Phone: Call Chemtrec  
Information Phone: (800) 662-2927

### 1. Product and Company Identification

Product Name: MONDUR® M (MOLTEN-BULK)  
Material Number: 5326974  
Chemical Family: Aromatic Isocyanate  
Chemical Name: Diphenylmethane Diisocyanate (MDI)

### 2. Hazards Identification

#### Emergency Overview

**Warning Color:** White, Light yellow **Form:** liquid molten **Odor:** slight, musty.  
Toxic gases/fumes may be given off during burning or thermal decomposition. Closed container may forcibly rupture under extreme heat or when contents have been contaminated with water. Use cold water spray to cool fire-exposed containers to minimize the risk of rupture. Causes respiratory tract irritation. May cause allergic respiratory reaction. Harmful if inhaled. Respiratory sensitizer. Lung damage and respiratory sensitization may be permanent. Causes skin irritation. May cause allergic skin reaction. Skin sensitizer. Animal tests and other research indicate that skin contact with MDI can play a role in causing isocyanate sensitization and respiratory reaction. Causes eye irritation. May cause lung damage.

#### Potential Health Effects

**Primary Routes of Entry:** Skin Contact, Inhalation, Eye Contact

**Medical Conditions Aggravated by Exposure:** Asthma, Respiratory disorders, Skin Allergies, Eczema

### HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

#### Inhalation

##### Acute Inhalation

**For Product: MONDUR® M (MOLTEN-BULK)**

Diisocyanate vapors or mist at concentrations above the TLV or PEL can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Persons with a preexisting, nonspecific bronchial hyperreactivity can respond to concentrations below the TLV or PEL with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure well above the TLV

or PEL may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). Chemical or hypersensitivity pneumonitis, with flu-like symptoms (e.g., fever, chills), has also been reported. These symptoms can be delayed up to several hours after exposure. These effects are usually reversible.

#### **Chronic Inhalation**

##### **For Product: MONDUR® M (MOLTEN-BULK)**

As a result of previous repeated overexposures or a single large dose, certain individuals may develop sensitization to diisocyanates (asthma or asthma-like symptoms) that may cause them to react to a later exposure to diisocyanates at levels well below the TLV or PEL. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath or asthmatic attack, could be immediate or delayed up to several hours after exposure. Extreme asthmatic reactions can be life threatening. Similar to many non-specific asthmatic responses, there are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Sensitization can be permanent. Chronic overexposure to diisocyanates has also been reported to cause lung damage (including fibrosis, decrease in lung function) that may be permanent.

#### **Skin**

##### **Acute Skin**

##### **For Product: MONDUR® M (MOLTEN-BULK)**

Causes irritation with symptoms of reddening, itching, and swelling. Persons previously sensitized can experience allergic skin reaction with symptoms of reddening, itching, swelling, and rash. Cured material is difficult to remove. Contact with MDI can cause discoloration.

##### **Chronic Skin**

##### **For Product: MONDUR® M (MOLTEN-BULK)**

Prolonged contact can cause reddening, swelling, rash, and, in some cases, skin sensitization. Animal tests and other research indicate that skin contact with MDI can play a role in causing isocyanate sensitization and respiratory reaction.

#### **Eye**

##### **Acute Eye**

##### **For Product: MONDUR® M (MOLTEN-BULK)**

Causes irritation with symptoms of reddening, tearing, stinging, and swelling. May cause temporary corneal injury. Vapor or aerosol may cause irritation with symptoms of burning and tearing.

##### **Chronic Eye**

##### **For Product: MONDUR® M (MOLTEN-BULK)**

Prolonged vapor contact may cause conjunctivitis.

#### **Ingestion**

##### **Acute Ingestion**

##### **For Product: MONDUR® M (MOLTEN-BULK)**

May cause irritation; Symptoms may include abdominal pain, nausea, vomiting, and diarrhea.

#### **Carcinogenicity:**

No Carcinogenic substances as defined by IARC, NTP and/or OSHA

### **3. Composition/Information on Ingredients**

#### **Hazardous components**

<u>Weight %</u>	<u>Components</u>	<u>CAS-No.</u>
>=95%	4,4'-Diphenylmethane Diisocyanate (MDI)	101-68-8
1 - 5%	2,4'-Diphenylmethane Diisocyanate	5873-54-1

(MDI)

#### 4. First aid measures

##### Eye contact

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Use lukewarm water if possible. Use fingers to ensure that eyelids are separated and that the eye is being irrigated. Get medical attention.

##### Skin contact

Immediately remove contaminated clothing and shoes. Wash off with soap and water. Use lukewarm water if possible. Wash contaminated clothing before reuse. For severe exposures, immediately get under safety shower and begin rinsing. Get medical attention if irritation develops.

##### Inhalation

Move to an area free from further exposure. Get medical attention immediately. Administer oxygen or artificial respiration as needed. Asthmatic symptoms may develop and may be immediate or delayed up to several hours. Extreme asthmatic reactions can be life threatening.

##### Ingestion

Do NOT induce vomiting. Wash mouth out with water. Do not give anything by mouth to an unconscious person. Get medical attention.

##### Notes to physician

Eyes: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic/steroid preparation as needed. Workplace vapors could produce reversible corneal epithelial edema impairing vision. Skin: This compound is a skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burn. Ingestion: Treat symptomatically. There is no specific antidote. Inducing vomiting is contraindicated because of the irritating nature of the compound. Inhalation: Treatment is essentially symptomatic. An individual having a dermal or pulmonary sensitization reaction to this material should be removed from further exposure to any diisocyanate.

#### 5. Fire-fighting measures

**Suitable extinguishing media:** Dry chemical, Carbon dioxide (CO<sub>2</sub>), Foam, water spray for large fires.

##### Special Fire Fighting Procedures

Firefighters should wear NFPA compliant structural firefighting protective equipment, including self-contained breathing apparatus and NFPA compliant helmet, hood, boots and gloves. Avoid contact with product. Decontaminate equipment and protective clothing prior to reuse. During a fire, isocyanate vapors and other irritating, highly toxic gases may be generated by thermal decomposition or combustion. Exposure to heated diisocyanate can be extremely dangerous.

##### Unusual Fire/Explosion Hazards

Closed container may forcibly rupture under extreme heat or when contents are contaminated with water (CO<sub>2</sub> formed). Use cold-water spray to cool fire-exposed containers to minimize the risk of rupture. Large fires can be extinguished with large volumes of water applied from a safe distance, since reaction between water and hot diisocyanate can be vigorous.

#### 6. Accidental release measures

### Spill and Leak Procedures

Evacuate non-emergency personnel. Isolate the area and prevent access. Remove ignition sources. Notify management. Put on protective equipment. Control source of the leak. Ventilate. Contain the spill to prevent spread into drains, sewers, water supplies, or soil. Call Bayer at 412-923-1800 for assistance and advice. Major Spill or Leak (Standing liquid): Released material may be pumped into closed, but not sealed, metal container for disposal. Process can generate heat. Minor Spill or Leak (Wet surface): Cover spill area with suitable absorbent material (Kitty Litter, Oil-Dri®, etc). Saturate absorbent material with neutralization solution and mix. Wait 15 minutes. Collect material in open-head metal containers. Repeat applications of decontamination solution, with scrubbing, followed by absorbent until the surface is decontaminated. Check for residual surface contamination. Swype® test kits have been used for this purpose. Apply lid loosely and allow containers to vent for 72 hours to let carbon dioxide (CO<sub>2</sub>) escape.

### Additional Spill Procedures/Neutralization

Neutralization solutions:

- (1) Colorimetric Laboratories Inc. (CLI) decontamination solution.
- (2) A mixture of 75% water, 20% non-ionic surfactant (e.g. Plurafac SL-62, Tergitol TMN-10) and 5% n-propanol.
- (3) A mixture of 80% water, 20% non-ionic surfactant (e.g. Plurafac SL-62, Tergitol TMN-10).
- (4) A mixture of 90% water, 3-8% ammonium hydroxide or concentrated ammonia, and 2% liquid detergent.

Bayer requires that CHEMTREC be immediately notified (800-424-9300) when this product is unintentionally released from its container during its course of distribution, regardless of the amount released. Distribution includes transportation, storage incidental to transportation, loading and unloading. Such notification must be immediate and made by the person having knowledge of the release.

## 7. Handling and storage

Storage temperature:

minimum:	41 °C (105.8 °F)
maximum:	43 °C (109.4 °F)

Storage period

< 1 Months: Recommended

### Handling/Storage Precautions

Do not breathe vapors, mists, or dusts. Use adequate ventilation to keep airborne isocyanate levels below the exposure limits. Wear respiratory protection if material is heated, sprayed, used in a confined space, or if the exposure limit is exceeded. Warning properties (irritation of the eyes, nose and throat or odor) are not adequate to prevent overexposure from inhalation. This material can produce asthmatic sensitization upon either single inhalation exposure to a relatively high concentration or upon repeated inhalation exposures to lower concentrations. Individuals with lung or breathing problems or prior allergic reactions to isocyanates must not be exposed to vapor or spray mist. Avoid contact with skin and eyes. Wear appropriate eye and skin protection. Wash thoroughly after handling. Do not breathe smoke and gases created by overheating or burning this material. Decomposition products can be highly toxic and irritating. Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected.

### Further Info on Storage Conditions

Employee education and training in the safe use and handling of this product are required under the OSHA Hazard Communication Standard 29 CFR 1910.1200.



## 8. Exposure controls / personal protection

### 4,4'-Diphenylmethane Diisocyanate (MDI) (101-68-8)

US. ACGIH Threshold Limit Values

Time Weighted Average (TWA): 0.005 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Ceiling Limit Value: 0.02 ppm, 0.2 mg/m<sup>3</sup>

### Industrial Hygiene/Ventilation Measures

Local exhaust should be used to maintain levels below the TLV whenever MDI is heated, sprayed, or aerosolized. Standard reference sources regarding industrial ventilation (e.g., ACGIH Industrial Ventilation Manual) should be consulted for guidance about adequate ventilation. To ensure that published exposure limits have not been exceeded, monitoring for airborne diisocyanate should become part of the overall employee exposure characterization program. NIOSH, OSHA, Bayer, and others have developed sampling and analytical methods. Bayer methods can be made available, upon request.

### Respiratory protection

Airborne MDI concentrations greater than the ACGIH TLV-TWA (TLV) or OSHA PEL-C (PEL) can occur in inadequately ventilated environments when MDI is sprayed, aerosolized, or heated. In such cases, respiratory protection must be worn. The type of respiratory protection selected must comply with the requirements set forth in OSHA's Respiratory Protection Standard (29 CFR 1910.134). The type of respiratory protection available includes (1) an atmosphere-supplying respirator such as a self-contained breathing apparatus (SCBA) or a supplied air respirator (SAR) in the positive pressure or continuous flow mode, or (2) an air-purifying respirator (APR). If an APR is selected then (a) the cartridge must be equipped with an end-of-service life indicator (ESLI) certified by NIOSH, or (b) a change out schedule, based on objective information or data that will ensure that the cartridges are changed out before the end of their service life, must be developed and implemented. The basis for the change out schedule must be described in the written respirator program. Further, if an APR is selected, the airborne diisocyanate concentration must be no greater than 10 times the TLV or PEL. The recommended APR cartridge is an organic vapor/particulate filter combination cartridge (OV/P100).

### Hand protection

Gloves should be worn., Nitrile rubber showed excellent resistance., Butyl rubber, neoprene and PVC are also effective.

### Eye protection

When directly handling liquid product, eye protection is required. Examples of eye protection include a chemical safety goggle, or chemical safety goggle in combination with a full face shield when there is a greater risk of splash.

### Skin and body protection

Avoid all skin contact. Depending on the conditions of use, cover as much of the exposed skin area as possible with appropriate clothing to prevent skin contact., Animal tests and other research indicate that skin contact with MDI can play a role in causing isocyanate sensitization and respiratory reaction., This data reinforces the need to prevent direct skin contact with isocyanates.

### Medical Surveillance

All applicants who are assigned to an isocyanate work area should undergo a pre-placement medical evaluation. A history of eczema or respiratory allergies such as hay fever, are possible reasons for medical exclusion from isocyanate areas. Applicants who have a history of adult asthma should be restricted from work with isocyanates. Applicants with a history of prior isocyanate sensitization should be excluded from further work with isocyanates. A comprehensive annual medical surveillance program should be instituted for all employees who are potentially exposed to diisocyanates. Once a worker has been diagnosed as sensitized to any isocyanate, no further exposure can be permitted. Refer to the Bayer pamphlet (Medical Surveillance Program for Isocyanate Workers) for additional guidance.

### Additional Protective Measures

Emergency showers and eye wash stations should be available. Educate and train employees in the safe use and handling of this product. Follow all label instructions.

## 9. Physical and chemical properties

Form:	liquid
Appearance:	molten
Color:	White, Light yellow
Odor:	slight, musty
pH:	not applicable
Melting Point:	38 °C (100.4 °F)
Flash point:	201.67 °C (395.01 °F) (ASTM D 93)
Specific Gravity:	1.19 @ 25 °C (77 °F)
Solubility in Water:	Insoluble - Reacts slowly with water to liberate CO <sub>2</sub> gas
Autoignition temperature:	> 400 °C (> 752 °F) (DIN 51794)
Decomposition temperature:	> 230 °C (> 446 °F)
Viscosity, dynamic:	4.1 mPa.s @ 40 °C (104 °F)
Bulk density:	1,190 kg/m <sup>3</sup>
Molecular Weight:	250

## 10. Stability and reactivity

### Hazardous Reactions

Contact with moisture, other materials that react with isocyanates, or temperatures above 350 F (177 C), may cause polymerization.

### Materials to avoid

Water, Amines, Strong bases, Alcohols, Copper alloys

### Hazardous decomposition products

By Fire and High Heat: Carbon dioxide (CO<sub>2</sub>), carbon monoxide (CO), oxides of nitrogen (NO<sub>x</sub>), dense black smoke., Isocyanate, Isocyanic Acid, Other undetermined compounds

## 11. Toxicological information

### Toxicity Data for MONDUR® M (MOLTEN-BULK)

#### Toxicity Note

Toxicity data based on polymeric MDI.

#### Acute oral toxicity

LD<sub>50</sub>: > 2,000 mg/kg (rat, Male/Female)

#### Acute inhalation toxicity

LC<sub>50</sub>: 490 mg/m<sup>3</sup>, 4 h (rat)

#### Skin irritation

rabbit, Slightly irritating

#### Repeated dose toxicity

90 Days, inhalation: NOAEL: 1 mg/m<sup>3</sup>, (rat, Male/Female, 6 hrs/day 5 days/week)

Irritation to lungs and nasal cavity.  
2 years, inhalation: NOAEL: 0.2, (rat, Male/Female, 6 hrs/day 5 days/week)  
Irritation to lungs and nasal cavity.

#### **Mutagenicity**

Genetic Toxicity in Vitro:

Bacterial - gene mutation assay: negative (Salmonella typhimurium, Metabolic Activation: with/without)

#### **Carcinogenicity**

rat, Male/Female, inhalation, 2 Years, 6 hrs/day 5 days/week,

Exposure to a level of 6 mg/m<sup>3</sup> polymeric MDI was related to the occurrence of lung tumors. This level is significantly over the TLV for MDI.

#### **Developmental Toxicity/Teratogenicity**

rat, female, inhalation, gestation days 6-15, 6 hrs/day, NOAEL (teratogenicity): 12 mg/m<sup>3</sup>, NOAEL (maternal): 4 mg/m<sup>3</sup>

No Teratogenic effects observed at doses tested., Fetotoxicity seen only with maternal toxicity.

#### **Toxicity Data for 4,4'-Diphenylmethane Diisocyanate (MDI)**

##### **Acute inhalation toxicity**

LC50: 369 mg/m<sup>3</sup>, 4 h (rat, Male/Female)

LC50: > 2240 mg/m<sup>3</sup>, 1 h (rat)

##### **Acute dermal toxicity**

LD50: > 10,000 mg/kg (rabbit)

##### **Skin irritation**

rabbit, Draize Test, Slightly irritating

##### **Eye irritation**

rabbit, Draize Test, Slightly irritating

##### **Sensitisation**

dermal: sensitizer (guinea pig, Maximisation Test)

inhalation: sensitizer (Guinea pig)

##### **Repeated dose toxicity**

90 Days, inhalation: NOAEL: 0.3 mg/m<sup>3</sup>, (rat, Male/Female, 18 hrs/day, 5 days/week)

Irritation to lungs and nasal cavity.

#### **Mutagenicity**

Genetic Toxicity in Vitro:

Ames: (Salmonella typhimurium, Metabolic Activation: with/without)

Positive and negative results were reported. The use of certain solvents which rapidly hydrolyze diisocyanates is suspected of producing the positive mutagenicity results.

Genetic Toxicity in Vivo:

Micronucleus Assay: (mouse)

negative

#### **Carcinogenicity**

rat, Female, inhalation, 2 Years, 17 hrs/day, 5 days/week,  
negative

## 12. Ecological information

### Ecological Data for MONDUR® M (MOLTEN-BULK)

#### **Biodegradation**

0 %, Exposure time: 28 d , i.e. not degradable

#### **Bioaccumulation**

Oncorhynchus mykiss (rainbow trout), Exposure time: 112 d, < 1 BCF  
Does not bioaccumulate.

#### **Acute and Prolonged Toxicity to Fish**

LC0: > 1,000 mg/l (Brachydanio rerio (zebra fish), 96 h)

LC0: > 3,000 mg/l (Oryzias latipes (Orange-red killifish), 96 h)

#### **Acute Toxicity to Aquatic Invertebrates**

EC50: > 1,000 mg/l (Water flea (Daphnia magna), 24 h)

#### **Toxicity to Aquatic Plants**

NOEC: 1,640 mg/l, End Point: growth (Green algae (Scenedesmus subspicatus), 72 h)

#### **Toxicity to Microorganisms**

EC50: > 100 mg/l, (activated sludge, 3 h)

#### **Additional Ecotoxicological Remarks**

Ecotoxicity data based on polymeric MDI

### Ecological Data for 4,4'-Diphenylmethane Diisocyanate (MDI)

#### **Acute and Prolonged Toxicity to Fish**

LC50: > 500 mg/l (Zebra fish (Brachydanio rerio), 24 h)

#### **Acute Toxicity to Aquatic Invertebrates**

EC50: > 500 mg/l (Water flea (Daphnia magna), 24 h)

## 13. Disposal considerations

#### **Waste Disposal Method**

Waste disposal should be in accordance with existing federal, state and local environmental control laws.  
Incineration is the preferred method.

#### **Empty Container Precautions**

Empty containers retain product residue; observe all precautions for product. Do not heat or cut empty container with electric or gas torch because highly toxic vapors and gases are formed. Do not reuse without thorough commercial cleaning and reconditioning. If container is to be disposed, ensure all product residues are removed prior to disposal.

## 14. Transport information

#### **Land transport (DOT)**

##### **Proper shipping name:**

Other regulated substances, liquid, n.o.s. (contains 4,4'-  
Diphenylmethane Diisocyanate (MDI))

##### **Hazard Class or Division:**

9

##### **UN/NA Number:**

NA3082

Packaging group: III  
Hazard Label(s): Class 9

**RSPA/DOT Regulated Components:**  
4,4'-Diphenylmethane Diisocyanate (MDI)

Reportable Quantity: 2,267 kg

**Sea transport (IMDG)**  
Non-Regulated

**Air transport (ICAO/IATA)**  
Non-Regulated

**Additional Transportation Information**

When in individual containers of less than the Product RQ, this material ships as non-regulated.

**15. Regulatory information**

**United States Federal Regulations**

OSHA Hazcom Standard Rating: Hazardous

US. Toxic Substances Control Act: Listed on the TSCA Inventory.

US. EPA CERCLA Hazardous Substances (40 CFR 302):  
**Components**

4,4'-Diphenylmethane Diisocyanate Reportable quantity: 5000 lbs  
(MDI)

SARA Section 311/312 Hazard Categories:  
Acute Health Hazard, Chronic Health Hazard

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III  
Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):  
**Components**

None

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III  
Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required:

**Components**

4,4'-Diphenylmethane Diisocyanate (MDI)

US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes  
and Appendix VIII Hazardous Constituents (40 CFR 261):

If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

**State Right-To-Know Information**

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

This product contains a trace (ppm) amount of phenyl isocyanate (CAS# 103-71-9) and monochlorobenzene (CAS# 108-90-7) as impurities.

**Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:**

<u>Weight %</u>	<u>Components</u>	<u>CAS-No.</u>
>=95%	4,4'-Diphenylmethane Diisocyanate (MDI)	101-68-8
1 - 5%	2,4'-Diphenylmethane Diisocyanate (MDI)	5873-54-1

**New Jersey Environmental Hazardous Substances List and/or New Jersey RTK Special Hazardous Substances Lists:**

<u>Weight %</u>	<u>Components</u>	<u>CAS-No.</u>
95 - 100%	4,4'-Diphenylmethane Diisocyanate (MDI)	101-68-8

**California Prop. 65:**

To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

**16. Other information**

**NFPA 704M Rating**

Health	2
Flammability	1
Reactivity	1
Other	

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

**HMIS Rating**

Health	2*
Flammability	1
Physical Hazard	1

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe

\* = Chronic Health Hazard

The method of hazard communication for Bayer MaterialScience LLC is comprised of Product Labels and Material Safety Data Sheets. HMIS and NFPA ratings are provided by Bayer MaterialScience LLC as a customer service.

Contact person: Product Safety Department  
Telephone: (412) 777-2835  
MSDS Number: 112000013623  
Version Date: 08/06/2009  
Report version: 1.1

This information is furnished without warranty, express or implied. This information is believed to be accurate to the best knowledge of Bayer MaterialScience LLC. The information in this MSDS relates only

to the specific material designated herein. Bayer MaterialScience LLC assumes no legal responsibility for use of or reliance upon the information in this MSDS.

GDSDL  
Mlem  
3/11/16

TSCA STATUS  
On / Exempt 1/28/15  
~~R & D Only~~  
PS / RA *Mary Spence*  
*Supplier Sent.*

## Safety Data Sheet

### PolyTHF® 1000 Polyether

Revision date 2014/07/31  
Version 2.0

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#### 1. Identification

Product Identifier used on the label

**PolyTHF® 1000 Polyether**

Recommended use of the chemical and restriction on use

\* The "Recommended use" identified for this product is provided solely to comply with a US Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement

Details of the supplier of the safety data sheet

Company  
BASF CORPORATION  
100 Park Avenue  
Florham Park, NJ 07932, USA ✓

Telephone +1 973 245-6000

Emergency telephone number

CHEMTREC 1-800-424-9300  
BASF HOTLINE 1-800-832-HELP (4357)

Other means of identification

Molecular formula	HO-(CH <sub>2</sub> )CH(2)C(2)CH(2)-nH
Chemical family	polyether
Synonyms	Alpha-hydro-omega-hydroxy-poly(oxy 1,4 butanediyl)

#### 2. Hazards Identification

According to Regulation 2012 OSHA Hazard Communication Standard: 29 CFR Part 1910.1200

Classification of the product

No need for classification according to GHS criteria for this product

Label elements

The product does not require a hazard warning label in accordance with GHS criteria



# Safety Data Sheet

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### Hazards not otherwise classified

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture

According to Regulation 1994 OSHA Hazard Communication Standard: 29 CFR Part 1910.1200

### Emergency overview

CAUTION  
INGESTION MAY CAUSE GASTRIC DISTURBANCES  
Use with local exhaust ventilation  
Avoid contact with the skin, eyes and clothing  
Avoid inhalation of dusts/mists/vapours  
Wear protective clothing  
Eye wash fountains and safety showers must be easily accessible  
Wear safety glasses with side-shields

## 3. Composition / Information on Ingredients

According to Regulation 2012 OSHA Hazard Communication Standard: 29 CFR Part 1910.1200

This product does not contain any components classified as hazardous under the referenced regulation

According to Regulation 1994 OSHA Hazard Communication Standard: 29 CFR Part 1910.1200

CAS Number	Content (W/W)	Chemical name
25190-08-1 ✓	100.0 % ✓	Polytetramethylene ether glycol

## 4. First-Aid Measures

### Description of first aid measures

General advice:  
Remove contaminated clothing

If inhaled:  
Remove the affected individual into fresh air and keep the person calm. Assist in breathing if necessary. Seek medical attention if necessary.

If on skin:  
Wash affected areas thoroughly with soap and water. If irritation develops, seek medical attention.

If in eyes:  
In case of contact with the eyes, rinse immediately for at least 15 minutes with plenty of water. If irritation develops, seek medical attention.

If swallowed:  
Rinse mouth and then drink plenty of water. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Immediate medical attention required.

**Most important symptoms and effects, both acute and delayed**

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Symptoms No significant reaction of the human body to the product known

Indication of any immediate medical attention and special treatment needed

### Note to physician

Treatment

Treat according to symptoms (decontamination, vital functions), no known specific antidote

---

## 5. Fire-Fighting Measures

### Extinguishing media

Suitable extinguishing media  
water spray, foam, dry powder, carbon dioxide

### Special hazards arising from the substance or mixture

Hazards during fire-fighting  
nitrogen oxides, carbon oxides  
The substances/groups of substances mentioned can be released in case of fire

### Advice for fire-fighters

Protective equipment for fire-fighting  
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear

---

## 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Wear appropriate respiratory protection Use personal protective clothing Ensure adequate ventilation Handle in accordance with good industrial hygiene and safety practice

### Environmental precautions

This product is not regulated by RCRA This product is not regulated by CERCLA ("Superfund")

### Methods and material for containment and cleaning up

Spills should be contained, solidified, and placed in suitable containers for disposal

---

## 7. Handling and Storage

### Precautions for safe handling

Ensure thorough ventilation of stores and work areas Prevent contact with air/oxygen (formation of peroxide) Handle under dry inert gas

### Protection against fire and explosion

Prevent electrostatic charge - sources of ignition should be kept well clear - fire extinguishers should be kept handy

### Conditions for safe storage, including any incompatibilities

Segregate from strong acids

Further information on storage conditions Containers should be stored tightly sealed in a dry place  
Keep under nitrogen

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Keep container tightly closed. Blanket partially filled container with dry nitrogen. Keep container dry because product takes up the humidity of air.

### Storage stability

Storage temperature 20 - < 95 °C

Storage duration 24 Months

The product is stabilized, the shelf life should be noted

From the data on storage duration in this safety data sheet no agreed statement regarding the warrantee of application properties can be deduced

Protect from temperatures above 90 °C

If transport time lasts more than 2 days the packed product must be protected against exceeding the indicated temperature

### additives

BHT (CAS Number 128-37-0)

## 8. Exposure Controls/Personal Protection

### Advice on system design:

Provide local exhaust ventilation to control vapours/mists. Provide local exhaust ventilation to control dust.

### Personal protective equipment

#### Respiratory protection:

Wear a NIOSH-certified (or equivalent) organic vapour/particulate respirator as needed. Observe OSHA regulations for respirator use (29 CFR 1910.134).

#### Hand protection:

Chemical resistant protective gloves, chloroprene rubber (Neoprene), nitrile rubber (Buna N)

#### Eye protection:

Wear face shield or tightly fitting safety goggles (chemical goggles) if splashing hazard exists. Safety glasses with side-shields (frame goggles) (e.g. EN 166)

#### Body protection:

Body protection must be chosen based on level of activity and exposure

### General safety and hygiene measures:

Eye wash fountains and safety showers must be easily accessible. Avoid inhalation of dust. Wear protective clothing as necessary to minimize contact. When using, do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks). Take off immediately all contaminated clothing. Wash contaminated clothing before reuse. Store work clothing separately.

## 9. Physical and Chemical Properties

Form	liquid to waxy, wax	
Odour	odourless	
Odour threshold		not applicable, odour not perceivable
Colour	colourless	
pH value		No data available
Melting point	26 °C	
Boiling point	> 250 °C	
Flash point	240 °C	(DIN ISO 2592)

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Flammability	not highly flammable	
Lower explosion limit		For solids not relevant for classification and labelling
Upper explosion limit		For solids not relevant for classification and labelling
Autoignition	> 245 °C	(DIN 51794)
Vapour pressure	< 0.1 mbar	(20 °C)
Density	0.982 g/cm <sup>3</sup>	(30 °C)
Bulk density	0.982 g/cm <sup>3</sup>	(30 °C)
Partitioning coefficient n-octanol/water (log Pow)	18.9	(25 °C) (calculated)
Thermal decomposition	> 240 °C	
Viscosity, dynamic	440 mPa s	(30 °C)
Solubility in water	< 10 g/l	(20 °C)
Solubility (quantitative)		organic solvents soluble
Evaporation rate		Value can be approximated from Henry's Law Constant or vapor pressure

### 10. Stability and Reactivity

#### Reactivity

No hazardous reactions if stored and handled as prescribed/indicated

#### Corrosion to metals

No corrosive effect on metal

#### Chemical stability

The product is stable if stored and handled as prescribed/indicated

#### Possibility of hazardous reactions

Risk of self-ignition when a large surface area is produced due to fine dispersion. Self-ignition at high temperatures

#### Conditions to avoid

Temperature > 100 degrees Celsius

#### Incompatible materials

strong oxidizing agents

#### Hazardous decomposition products

##### Decomposition products

Possible decomposition products: tetrahydrofuran

No hazardous decomposition products if stored and handled as prescribed/indicated

##### Thermal decomposition

> 240 °C

### 11. Toxicological information

#### Primary routes of exposure

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Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

### Acute Toxicity/Effects

#### Acute toxicity

Assessment of acute toxicity: Virtually nontoxic after a single ingestion.

*Information on Polytetrahydrofuran wax*

#### Oral

Type of value: LD50

Species: rat

Value: > 5,000 mg/kg (BASF-Test)

#### Irritation / corrosion

Assessment of irritating effects: Not irritating to the skin. Not irritating to the eyes.

#### Skin

Species: rabbit

Result: non-irritant

Method: Draize test

#### Eye

Species: rabbit

Result: non-irritant

Method: Draize test

#### Sensitization

Assessment of sensitization: The chemical structure does not suggest a sensitizing effect.

### Chronic Toxicity/Effects

#### Genetic toxicity

Assessment of mutagenicity: The substance was not mutagenic in bacteria.

#### Other Information

No experimental evidence available for genotoxicity in vitro (Ames test negative).

### Symptoms of Exposure

No significant reaction of the human body to the product known.

---

## 12. Ecological Information

### Toxicity

#### Aquatic toxicity

Assessment of aquatic toxicity:

The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations. Acutely harmful for aquatic organisms.

#### Toxicity to fish

LC50 (96 h): 68-49 mg/l, *Brachydanio rerio* (OECD Guideline 203, semistatic).

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The details of the toxic effect relate to the nominal concentration. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition. The product has low solubility in the test medium. An aqueous dispersion has been tested. Damage can occur as a result of mechanical effects of the product (e.g. bonding).

### Microorganisms/Effect on activated sludge

#### Toxicity to microorganisms

DIN EN ISO 8192-OECD 209-88/302/EEC, P C aerobic  
activated sludge, domestic/EC20 (30 min) approx. 450 mg/l  
The details of the toxic effect relate to the nominal concentration.

### Persistence and degradability

#### Assessment biodegradation and elimination (H<sub>2</sub>O)

Not readily biodegradable (by OECD criteria) Poorly biodegradable

#### Elimination information

10 - 20 % BOD of the ThOD (32 d) (OECD 301F, ISO 9408, 92/69/EEC, C 4-D) (aerobic, activated sludge, adapted)

### Bioaccumulative potential

#### Bioaccumulation potential

Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is possible.

### Mobility in soil

#### Assessment transport between environmental compartments

The substance will not evaporate into the atmosphere from the water surface.  
Adsorption to solid soil phase is expected.

### Additional Information

Adsorbable organically-bound halogen (AOX)  
This product contains no organically-bound halogen.

#### Other ecotoxicological advice

The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

---

## 13. Disposal considerations

#### Waste disposal of substance:

Incinerate in a licensed facility. Dispose of in accordance with local authority regulations.  
Do not discharge substance/product into sewer system. Dispose of in accordance with national, state and local regulations.

#### Container disposal:

Dispose of in a licensed facility. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.

# Safety Data Sheet

## PolyTHF® 1000 Polyether

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### 14. Transport Information

Land transport  
USDOT

Not classified as a dangerous good under transport regulations

Sea transport  
IMDG

Not classified as a dangerous good under transport regulations

Air transport  
IATA/ICAO

Not classified as a dangerous good under transport regulations

### 15. Regulatory Information

#### Federal Regulations

Registration status:  
Chemical TSCA, US released / listed ✓

EPCRA 311/312 (Hazard categories): Not hazardous,

NFPA Hazard codes:  
Health 1 Fire 1 Reactivity 0 Special

HMIS III rating  
Health 1 Flammability 1 Physical hazard 0

#### Assessment of the hazard classes according to UN GHS criteria (most recent version):

Skin Corr /Irrit 3 Skin corrosion/irritation

### 16. Other Information

SDS Prepared by:  
BASF NA Product Regulations  
SDS Prepared on 2014/07/31

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

# Safety Data Sheet

## PolyTHF® 1000 Polyether

Revision date 2014/07/31  
Version 2.0

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(30073177/SDS GEN US/EN)

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# SAFETY DATA SHEET



## 1. Identification

Covestro LLC  
formerly Bayer MaterialScience LLC  
1 Covestro Circle  
Pittsburgh, PA 15205  
USA

### TRANSPORTATION EMERGENCY

CALL CHEMTREC: (800) 424-9300  
INTERNATIONAL: (703) 527-3887

### NON-TRANSPORTATION

Emergency Phone: Call Chemtrec  
Information Phone: (844) 646-0545

Product Name: 1,4-BUTANEDIOL  
Material Number: 5106141  
Use: Polyol components for the production of polyurethanes

## 2. Hazards Identification

### GHS Classification

Acute toxicity (Oral): Category 4  
Eye irritation: Category 2B  
Specific target organ toxicity - single exposure: Category 3 (Central nervous system)

### GHS Label Elements

Hazard pictograms:



Signal word: Warning

Hazard statements: Harmful if swallowed.  
Causes eye irritation.  
May cause drowsiness or dizziness.

Precautionary statements:

### Prevention:

Avoid breathing dust, mist, gas, vapors or spray.  
Wash skin and face thoroughly after handling.  
Do not eat, drink or smoke when using this product.  
Use only outdoors or in a well-ventilated area.

### Response:

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

IF INHALED: Remove person to fresh air and keep at rest in a

Material Name: 1,4-BUTANEDIOL

Material Number: 5106141

position comfortable for breathing.

IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

Call a doctor or emergency medical facility (i.e. 911) if you feel unwell.

Rinse mouth.

If eye irritation persists: Get medical attention.

**Storage:**

Store in a well-ventilated place.

Store locked up.

Keep container tightly closed.

**Disposal:**

Dispose of contents and container in accordance with existing federal, state, and local environmental control laws.

### 3. Composition/Information on Ingredients

#### Hazardous Components

<u>Weight Percent</u>	<u>Components</u>	<u>CAS-No.</u>	<u>Classification</u>
90 - 100%	1,4-Butanediol	110-63-4	Acute toxicity Category 4 Oral. Specific target organ toxicity - single exposure Category 3 Central nervous system.

The specific chemical identity and/or exact percentage of component(s) have been withheld as a trade secret.

### 4. First Aid Measures

#### Most Important Symptom(s)/Effect(s)

**Acute:** Inhalation or ingestion may cause nervous system effects which can include symptoms of dizziness, incoordination, headache, numbness, and/or confusion., Causes eye irritation with symptoms of reddening, tearing, stinging, and swelling.

#### Eye Contact

In case of contact, flush eyes with plenty of lukewarm water.

#### Skin Contact

In case of skin contact, wash affected areas with soap and water.

#### Inhalation

If inhaled, remove to fresh air. Get medical attention if irritation develops.

#### Ingestion

If ingested, do not induce vomiting unless directed to do so by medical personnel. Get medical attention.

## 5. Firefighting Measures

**Suitable Extinguishing Media:** Carbon dioxide (CO<sub>2</sub>), Dry chemical, Foam, water spray for large fires.

**Unsuitable Extinguishing Media** No Data Available

### Fire Fighting Procedure

Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes. Use cold water spray to cool fire-exposed containers to minimize the risk of rupture.

### Hazardous Decomposition Products

By Fire: Carbon Dioxide Carbon Monoxide other aliphatic fragments which have not been determined

## 6. Accidental Release Measures

### Spill and Leak Procedures

Cover spill with inert material (e. g., dry sand or earth) and collect for proper disposal.

## 7. Handling and Storage

### Handling/Storage Precautions

Handle in accordance with good industrial hygiene and safety practices. Wash thoroughly after handling. Keep container closed when not in use. Material is hygroscopic and may absorb small amounts of atmospheric moisture. If contamination with isocyanates is suspected, do not reseal containers.

### Storage Period:

6 Months

### Storage Temperature

**Maximum:** 45 °C (113 °F)

### Substances to Avoid

Oxidizing agents, Isocyanates

## 8. Exposure Controls/Personal Protection

Country specific exposure limits have not been established or are not applicable

Any component which is listed in section 3 and is not listed in this section does not have a known ACGIH TLV, OSHA PEL or supplier recommended occupational exposure limit.

### Industrial Hygiene/Ventilation Measures

Use local and general exhaust ventilation to control levels of exposure.

### Respiratory Protection

None required under normal conditions of use.

### Eye Protection

Safety glasses with side-shields

**Skin Protection**

No special skin protection requirements during normal handling and use.

**Additional Protective Measures**

Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product.

**9. Physical and Chemical Properties**

State of Matter:	liquid
Color:	Colorless
Odor:	Odorless
Odor Threshold:	No Data Available
pH:	neutral
Boiling Point:	229.2 °C (444.56 °F) @ 1,013 hPa
Flash Point:	ca. 135 °C (275 °F) (DIN 51758)
Evaporation Rate:	No Data Available
Lower Explosion Limit:	2.4 %(V)
Upper Explosion Limit:	15.3 %(V)
Vapor Pressure:	No Data Available
Vapor Density:	No Data Available
Density:	ca. 1.0169 g/cm <sup>3</sup> @ 20 °C (68 °F) (DIN 51757)
Relative Vapor Density:	No Data Available
Specific Gravity:	No Data Available
Solubility in Water:	miscible
Partition Coefficient: n-octanol/water:	logPow: -0.88
Auto-ignition Temperature:	ca. 420 °C (788 °F) (DIN 51794)
Decomposition Temperature:	No Data Available
Dynamic Viscosity:	90 - 93 mPa.s @ 20 °C (68 °F) 71.5 mPa.s @ 25 °C (77 °F) (No statements available.)
Kinematic Viscosity:	No Data Available

**10. Stability and Reactivity****Hazardous Reactions**

Hazardous polymerisation does not occur.

**Stability**

Stable

**Materials to Avoid**

Oxidizing agents, Isocyanates

**Hazardous Decomposition Products**

By Fire: Carbon Dioxide; Carbon Monoxide; other aliphatic fragments which have not been determined

**11. Toxicological Information****Likely Routes of Exposure:**

Skin Contact  
Eye Contact

**Health Effects and Symptoms**

Material Name: 1,4-BUTANEDIOL

Material Number: 5106141

**Acute:** Inhalation or ingestion may cause nervous system effects which can include symptoms of dizziness, incoordination, headache, numbness, and/or confusion., Causes eye irritation with symptoms of reddening, tearing, stinging, and swelling.

**Toxicity Data for: 1,4-BUTANEDIOL**

**Acute Oral Toxicity**

LD50: 1780 mg/kg (rat)

LD50: 2180 mg/kg (Mouse)

**Acute Dermal Toxicity**

LD50: > 2000 mg/kg (rat)

**Skin Irritation**

Human, Patch Test, Non-irritating

**Eye Irritation**

rabbit, Draize, Slightly irritating

**Sensitization**

dermal: non-sensitizer (Guinea pig, Maximization Test)

dermal: non-sensitizer (Human, Patch Test)

**Repeated Dose Toxicity**

14 Days, inhalation: NOAEL: 1.1 mg/l, (Rat)

180 Days, oral: NOAEL: 25 mg/kg, (Rat)

**Developmental Toxicity/Teratogenicity**

Mouse, Female, oral, NOAEL (teratogenicity): 600 mg/kg,  
No Teratogenic effects observed at doses tested.

**Toxicity Data for 1,4-Butanediol**

**Acute Oral Toxicity**

LD50: 1500 mg/kg (rat, male/female)

**Acute Inhalation Toxicity**

LC50: > 15 mg/l, 4 h, dust/mist(rat, male) (OECD Guideline 436)

**Acute Dermal Toxicity**

LD50: > 2000 mg/kg (rat, male/female)

**Skin Irritation**

rabbit, Draize Test, Non-irritating

**Eye Irritation**

rabbit, Draize, Non-irritating

**Sensitization**

Skin sensitisation according to Magnusson/Kligmann (maximizing test):: non-sensitizer (Guinea pig, Maximization Test)

dermal: non-sensitizer (Human, Patch Test)

Skin sensitisation according to Magnusson/Kligmann (maximizing test):: negative (Guinea pig, Magnusson/Kligmann (Maximization Test))

#### **Repeated Dose Toxicity**

14 Days, inhalation: NOAEL: 1.1 mg/l, (Rat)

180 Days, oral: NOAEL: 25 mg/kg, (Rat)

Chronic exposure damages the brain and the central nervous system.

oral: NOAEL: 200 mg/kg, (Rat, male and female, daily)

#### **Mutagenicity**

Genetic Toxicity in Vitro:

In vitro mammalian cell gene mutation test: negative (Chinese hamster ovary (CHO) cells, Metabolic Activation: with/without)

#### **Toxicity to Reproduction/Fertility**

Fertility Screening, Oral, daily, (rat, male/female) NOAEL (parental): 200 mg/kg,

#### **Developmental Toxicity/Teratogenicity**

Mouse, Female, oral, NOAEL (teratogenicity): 600 mg/kg, No Teratogenic effects observed at doses tested. Mouse, Female, oral, GD 6-15, daily, NOAEL (teratogenicity): 100, NOAEL (maternal): 100 mg/kg,

#### **Other Relevant Toxicity Information**

May cause drowsiness or dizziness if ingested.

#### **Carcinogenicity:**

No carcinogenic substances as defined by IARC, NTP and/or OSHA

### **12. Ecological Information**

#### **Biodegradation**

Aerobic, 96 %, Exposure time: 14 Days  
Readily biodegradable.

#### **Acute and Prolonged Toxicity to Fish**

LC50: 1,240 mg/l (Common Carp (Cyprinus carpio), 96 h)

#### **Acute Toxicity to Aquatic Invertebrates**

EC50: 813 mg/l (Water flea (Daphnia magna), 48 h)

#### **Toxicity to Aquatic Plants**

EC50: > 1,000 mg/l, End Point: biomass (Green algae (Scenedesmus subspicatus), 72 h)

#### **Toxicity to Microorganisms**

EC10: 10,000 mg/l, (Pseudomonas putida)

#### **Ecological Data for 1,4-Butanediol**

##### **Biodegradation**

Aerobic, 96 %, Exposure time: 14 Days  
Readily biodegradable.

#### **Acute and Prolonged Toxicity to Fish**

Material Name: 1,4-BUTANEDIOL

Material Number: 5106141

LC50: 1,240 mg/l (Common Carp (Cyprinus carpio), 96 h)

**Acute Toxicity to Aquatic Invertebrates**

EC50: 813 mg/l (Water flea (Daphnia magna), 48 h)

**Toxicity to Aquatic Plants**

EC50: > 1,000 mg/l, End Point: biomass (Green algae (Scenedesmus subspicatus), 72 h)

**Toxicity to Microorganisms**

EC10: 10,000 mg/l, (Pseudomonas putida)

**13. Disposal Considerations**

**Waste Disposal Method**

Waste disposal should be in accordance with existing federal, state and local environmental control laws.

**Empty Container Precautions**

Recondition or dispose of empty container in accordance with governmental regulations.

**14. Transportation Information**

Land transport (DOT)

Non-Regulated

Sea transport (IMDG)

Non-Regulated

Air transport (ICAO/IATA)

Non-Regulated

**15. Regulatory Information**

United States Federal Regulations

US. Toxic Substances Control Act: Listed on the TSCA Inventory.

No substances are subject to TSCA 12(b) export notification requirements.

US. EPA CERCLA Hazardous Substances (40 CFR 302) Components:

None

SARA Section 311/312 Hazard Categories:

Acute Health Hazard

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III  
Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A) Components:

None

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III  
Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required Components:

None

US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes

Material Name: 1,4-BUTANEDIOL

Material Number: 5106141

**and Appendix VIII Hazardous Constituents (40 CFR 261):**

Under RCRA, it is the responsibility of the person who generates a solid waste, as defined in 40 CFR 261.2, to determine if that waste is a hazardous waste.

**State Right-To-Know Information**

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the SDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

**Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:**

<u>Weight percent</u>	<u>Components</u>	<u>CAS-No.</u>
100%	1,4-Butanediol	110-63-4

**California Prop. 65:**

To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

Based on information provided by our suppliers, this product is considered "DRC Conflict Free" as defined by the SEC Conflict Minerals Final Rule (Release No. 34-67716; File No. S7-40-10; Date: 2012-08-22).

**16. Other Information**

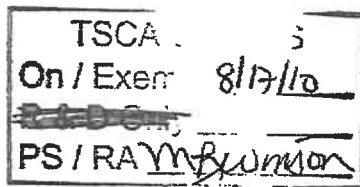
The method of hazard communication for Covestro LLC is comprised of Product Labels and Safety Data Sheets.

Contact:	Product Safety Department
Telephone:	(412) 413-2835
SDS Number:	112000013472
Version Date:	09/10/2015
SDS Version:	2.2

This information is furnished without warranty, express or implied. This information is believed to be accurate to the best knowledge of Covestro LLC. The information in this SDS relates only to the specific material designated herein. Covestro LLC assumes no legal responsibility for use of or reliance upon the information in this SDS.

|| Changes since the last version are highlighted in the margin. This version replaces all previous versions.





SASOL



ALFOL® 8 Alcohol

Supplier cert'n -

# Material Safety Data Sheet

## SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

**Trade name** ALFOL® 8 Alcohol  
**Synonyms** 1-Octanol, Octyl Alcohol  
**Manufacturer/Supplier** Sasol North America Inc.  
**Address** 900 Threadneedle, Houston, TX 77079 ✓  
**Telephone** CHEMTREC North America Transportation Emergency (24-hr) (800) 424-9300  
CHEMTREC World Wide (703) 527-3887  
Other Emergencies (24-hr) (337) 494-5142  
MSDS and Product Information (8:00am-4:30pm CST) (281) 588-3491  
Health and Safety Information (8:00am-4:00pm CST) (281) 588-3492

## SECTION 2 COMPOSITION AND INFORMATION ON INGREDIENTS

Components  
1-Octanol

CAS-No.  
111-87-5

Weight %  
98.8 - 99.7 ✓

See Section 8 for Exposure Guidelines and Section 15 for Regulatory Classifications.

## SECTION 3 HAZARDS IDENTIFICATION

### EMERGENCY OVERVIEW

**Appearance** Colorless liquid  
**Odor** Sweet, pungent  
**Precautions** **WARNING! COMBUSTIBLE LIQUID AND VAPOR. CAUSES EYE AND SKIN IRRITATION.** Avoid contact with skin, eyes and clothing. Wash thoroughly after handling. Keep away from heat and flame.  
**Environmental precautions** Do not flush into surface water or sanitary sewer system. Toxic to aquatic life. Rapidly, readily and extensively biodegradable.

### POTENTIAL HEALTH EFFECTS

**Eyes** Irritating to eyes. May cause corneal inflammation.  
**Skin** Prolonged skin contact may cause skin irritation and/or dermatitis. Normal care and personal hygiene should prevent skin effects.



## ALFOL® 8 Alcohol

### SECTION 6 ACCIDENTAL RELEASE MEASURES

**Steps to be taken in case of spill or leak** Evacuate personnel to safe areas. Remove all sources of ignition. Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see Section 13). Do not flush into surface water or sanitary sewer system.

**Spill precautions** Material can create slippery conditions.

### SECTION 7 HANDLING AND STORAGE

**Safe handling advice** Ensure all equipment is electrically grounded before beginning transfer operations.

**Storage/Transport pressure** Ambient.

**Load/Unload temperature** Ambient.

### SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

#### ENGINEERING MEASURES

Mechanical ventilation may be necessary if working with this product in enclosed areas and/or at elevated temperatures.

#### PERSONAL PROTECTIVE EQUIPMENT

**Eyes** When contact with liquid is possible, use a face shield and/or chemical splash goggles. Otherwise use safety glasses with side shields or goggles.

**Skin** Wear suitable protective clothing, gloves and eye/face protection.

**Inhalation** Respiratory protection is normally not required except in emergencies or when conditions cause excessive airborne levels of mists or vapors. NIOSH-approved organic vapor air-purifying respirator, self-contained breathing apparatus, or air-supplied respirators where there may be potential for overexposure.

#### EXPOSURE GUIDELINES

Components	Exposure limit(s)
1-Octanol	AIHA WEEL (8-hour) 50 ppm (265 mg/m <sup>3</sup> )

PEL= Permissible Exposure Limits  
TLV= Threshold Limit Value  
EL= Excursion Limit

TWA= Time Weighted Average (8 hr.)  
STEL= Short Term Exposure Limit (15 min.)  
WEEL= Workplace Environmental Exposure Level



## ALFOL® 8 Alcohol

- Skin** Primary irritation index (rabbit): 5.3 (Maximum score is 8.0.)  
 Acute dermal LD50 (rabbit): 2,000 mg/kg
- Inhalation** Acute LC50 > 5.6 mg/l
- Ingestion** Acute oral LD50 (rat): 5,000 mg/kg

### CARCINOGENICITY

This product contains no carcinogenic substances.

## SECTION 12 ECOLOGICAL INFORMATION

- Aquatic toxicity** Toxic to aquatic life.  
 LC50 (P. Promelas (fathead minnow)) 96 hours: 13.4 mg/l  
 Test Substance: 1-octanol
- Biodegradation** Rapidly, readily and extensively biodegradable.

## SECTION 13 DISPOSAL CONSIDERATIONS

- Waste code** Any unused product or empty containers may be disposed of as non-hazardous in accordance with state and federal requirements. Re-evaluation of the product may be required by the user at the time of disposal, since the product uses, transformations, mixtures, contamination, and spillage may change the classification. If the resulting material is determined to be hazardous, please dispose in accordance with state and federal (40 CFR 262) hazardous waste regulations.
- Disposal methods** Dispose of only in accordance with local, state, and federal regulations.
- Empty containers** Empty containers retain product residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Empty drums should be completely drained, triple-rinsed, properly bunged and promptly returned to a drum reconditioner, or properly disposed.

## SECTION 14 TRANSPORT INFORMATION

- DOT description** Alcohols, n.o.s. (Octanol). Combustible liquid, UN 1987, III  
 This product is regulated as a hazardous material according to the Department of Transportation in bulk quantities (greater than 119 gallons per package) only.

## ALFOL® 8 Alcohol

**Japanese Minister of International Trade and Industry (MITI) Inventory Listing**  
 Listed on MITI.

**Canadian Domestic Substance List (DSL) Inventory Listing**  
 Listed on the DSL.

**European Inventory of Existing Commercial Chemical Substances (EINECS) Listing**  
 Listed on EINECS.

**Phillipines Inventory List (PICCS)**  
 Listed on PICCS.

**Korean Inventory List**  
 Listed on the ECL.

**China Inventory List**  
 Listed on the China inventory.

### STATE REGULATIONS

**California Safe Drinking Water Act (Prop 65) Listing**  
Components

CAS-No.

Contains no chemical subject to California Prop 65.

## SECTION 16 OTHER INFORMATION

### HAZARD RATINGS

	<u>Health</u>	<u>Flammability</u>	<u>Reactivity</u>
HMIS	2	2	0
NFPA	1	2	0

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# SAFETY DATA SHEET

# Lonza

## ACRAWAX™ C BEADS

Version 1.1

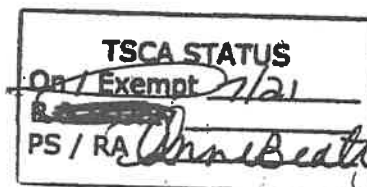
MSDS Number: 000000002294

Revision Date: 2015.06.15

112\*34802

### SECTION 1. IDENTIFICATION

Commercial Product Name : ACRAWAX C BEADS  
Product name : ACRAWAX™ C BEADS  
Product code : 000000002294  
  
Manufacturer or supplier's details  
Company : Lonza Inc.  
90 Boroline Road  
Allendale, NJ 07401  
USA  
Business Telephone 1-201-316-9200



Supplier Certified

Lonza Inc.  
1200 Bluegrass Lakes Pkwy  
Alpharetta, GA 30004  
USA  
Business Telephone 1-678-624-5800

E-mail address : prodinfo@lonza.com  
Emergency telephone number : +41 61 313 94 94 (24h )  
For US only CHEMTREC 1-800-424-9300

Recommended use of the chemical and restrictions on use  
Recommended use : Additive  
Lubricant

### SECTION 2. HAZARDS IDENTIFICATION

#### GHS Classification

This material is considered hazardous under the OSHA Hazard Communication Standard criteria, based on hazard(s) not otherwise classified.

#### GHS Label element

This material is considered hazardous under the OSHA Hazard Communication Standard criteria, based on hazard(s) not otherwise classified.

Handle in accordance with good industrial hygiene and safety practice.

Signal word : Warning  
Hazard statements : May form combustible dust concentrations in air  
Precautionary statements : Prevention:  
P240 Ground/bond container and receiving equipment.  
P241 Use explosion-proof electrical/ ventilating/ lighting/ ? / equipment.  
P260 Do not breathe dust or mist.  
P261 Avoid breathing mist or vapours.  
P270 Do not eat, drink or smoke when using this product.

06076971

New Martinsville Texin Unit

## SAFETY DATA SHEET

**Lonza****ACRAWAX™ C BEADS**

Version 1.1

MSDS Number: 000000002294

Revision Date: 2015.06.15

P280 Wear face protection.

**Response:**

P314 Get medical advice/ attention if you feel unwell.

**Storage:**

P402 + P404 Store in a dry place. Store in a closed container.

P410 + P403 Protect from sunlight. Store in a well-ventilated place.

**Disposal:**

P501 Dispose of contents/container in accordance with local regulation.

**Other hazards**

No information available.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture : Substance

**Hazardous components**

Chemical Name.	CAS-No.	Concentration (%)
Octadecanamide, N,N'-1,2-ethanediylbis	110-30-5	80.00 - 98.00 ✓
Stearic acid	57-11-4	1.00 - 3.00 ✓

**SECTION 4. FIRST AID MEASURES**

- If inhaled : Remove to fresh air.  
If breathing is irregular or stopped, administer artificial respiration.  
Give oxygen.  
Consult a physician.
- In case of skin contact : After contact with skin, wash immediately with plenty of soap and water.  
In the case of skin irritation or allergic reactions see a physician.
- In case of eye contact : Immediately flush eye(s) with plenty of water.  
If eye irritation persists, consult a specialist.
- If swallowed : If swallowed, do not induce vomiting - seek medical advice.  
Immediately give large quantities of water to drink.  
Never give anything by mouth to an unconscious person.
- Most important symptoms and effects, both acute and delayed : No information available.
- Notes to physician : No information available.

**SECTION 5. FIREFIGHTING MEASURES**

- Suitable extinguishing media : Dry powder  
Water spray  
Foam

- Specific hazards during firefighting : Heating or fire can release toxic gas.

# SAFETY DATA SHEET

**Lonza**

## ACRAWAX™ C BEADS

Version 1.1

MSDS Number: 000000002294

Revision Date: 2015.06.15

- Further information : Use water spray to cool unopened containers.
- Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

### SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.

Environmental precautions

- General advice : Prevent product from entering drains.
- Methods and materials for containment and cleaning up : Sweep up or vacuum up spillage and collect in suitable container for disposal.

### SECTION 7. HANDLING AND STORAGE

- Advice on safe handling : Provide sufficient air exchange and/or exhaust in work rooms.
- Conditions for safe storage : To maintain product quality, do not store in heat or direct sunlight. Keep container tightly closed. Keep in a dry, cool and well-ventilated place.

### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Stearic acid	57-11-4	TWA	10 mg/m3	ACGIH
		TWA	10 mg/m3	CAD ON OEL

#### Appropriate engineering controls

#### Personal protective equipment

- Respiratory protection : No personal respiratory protective equipment normally required.
- Hand protection  
Material : Wear suitable gloves.
- Eye protection : Safety glasses with side-shields
- Skin and body protection : No special protective equipment required.
- Protective measures : Risk of dust explosion.

# SAFETY DATA SHEET

# Lonza

## ACRAWAX™ C BEADS

Version 1.1

MSDS Number: 000000002294

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Use only in area provided with appropriate exhaust ventilation.

Hygiene measures

: Handle in accordance with good industrial hygiene and safety practice.

### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: solid
Colour	: light brown
Odour	: fatty odour
Odour Threshold	: no data available
pH	: 6.5 - 7.5, (20 °C)
Melting point/range	: 140 - 145 °C
Boiling point/boiling range	: no data available
Flash point	: 270 - 290 °C Method: open cup
Evaporation rate	: no data available
Upper explosion limit	: no data available
Lower explosion limit	: no data available
Vapour pressure	: no data available
Relative vapour density	: no data available
Relative density	: no data available
Density	: < 1 g/cm3
Solubility(ies)	
Water solubility	: 0.01 mg/l (25 °C)
Solubility in other solvents	: 12.1 g/l (78 °C) Solvent: Ethanol
Partition coefficient: n-octanol/water	: no data available
Auto-ignition temperature	: no data available
Decomposition temperature	: no data available
Viscosity, dynamic	: no data available



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Viscosity, kinematic : no data available

### SECTION 10. STABILITY AND REACTIVITY

Reactivity : Stable under recommended storage conditions.

Chemical stability : Stable under normal conditions.

Possibility of hazardous reactions : Risk of dust explosion. Stable under normal conditions.

Conditions to avoid : Avoid dust formation.  
Heat, flames and sparks.

Incompatible materials : Strong oxidizing agents  
Reducing agents

Hazardous decomposition products : Nitrogen oxides (NOx)  
Carbon oxides

### SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : Inhalation  
Eyes  
Skin  
Ingestion

#### Acute toxicity

Acute oral toxicity (LD50) : > 15,380 mg/kg  
Species: Rat

Acute inhalation toxicity (LC50) : > 58 mg/l  
Species: Rat  
Method: US-EPA

Acute dermal toxicity (LD50) : > 20,000 mg/kg  
Species: Rabbit  
Method: US-EPA

#### Skin corrosion/irritation

Skin irritation : No skin irritation  
Species: Rabbit

#### Serious eye damage/eye irritation

Eye irritation : Mild eye irritation  
Species: Rabbit

#### Respiratory or skin sensitisation

Sensitisation : Remarks: no data available

#### Germ cell mutagenicity

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Genotoxicity in vitro : negative  
Ames test, Salmonella typhimurium

### Further information

Remarks: Information given is based on data on the components and the toxicology of similar products.  
No data is available on the product itself.

## SECTION 12. ECOLOGICAL INFORMATION

### Ecotoxicity

Toxicity to fish (LC50) : > 1,000 mg/l  
Species: Oncorhynchus mykiss (rainbow trout)  
Acute toxicity  
Exposure time: 96 h  
GLP: yes

Toxicity to daphnia and other aquatic invertebrates (EC50) : 140 mg/l  
Species: Daphnia magna (Water flea)  
Immobilization  
Exposure time: 48 h

### Persistence and degradability

Biodegradability : Test Type: Modified Sturm Test  
Concentration: 10 mg/l  
Result: Not readily biodegradable.  
Biodegradation: 15 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301B  
GLP: yes

### Bioaccumulative potential

no data available

### Mobility in soil

no data available

### Other adverse effects

Additional ecological information : Information given is based on data on the components and the ecotoxicology of similar products.

## SECTION 13. DISPOSAL CONSIDERATIONS

### Disposal methods

Waste from residues : Dispose of in accordance with local regulations.  
Contact waste disposal services.

Contaminated packaging : Dispose of as unused product.

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### SECTION 14. TRANSPORT INFORMATION

#### IATA

Not dangerous goods

UN number : Not applicable  
Proper shipping name : Not applicable  
Transport hazard class : Not applicable  
Packing group : Not applicable  
Environmental hazards : no

#### IMDG

Not dangerous goods

UN number : Not applicable  
Proper shipping name : Not applicable  
Transport hazard class : Not applicable  
Packing group : Not applicable  
Environmental hazards : Marine pollutant: no

#### ADR

Not dangerous goods

UN number : Not applicable  
Proper shipping name : Not applicable  
Transport hazard class : Not applicable  
Packing group : Not applicable  
Environmental hazards : no

#### RID

Not dangerous goods

UN number : Not applicable  
Proper shipping name : Not applicable  
Transport hazard class : Not applicable  
Packing group : Not applicable  
Environmental hazards : no

#### DOT

Not dangerous goods

UN number : Not applicable  
Proper shipping name : Not applicable  
Transport hazard class : Not applicable  
Packing group : Not applicable  
Environmental hazards : no

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### TDG

: Not dangerous goods

UN number : Not applicable  
Proper shipping name : Not applicable  
Transport hazard class : Not applicable  
Packing group : Not applicable  
Environmental hazards : no

Special precautions for user : none

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not applicable

## SECTION 15. REGULATORY INFORMATION

### EPCRA - Emergency Planning and Community Right-to-Know Act

SARA 311/312 Hazards : No SARA Hazards

#### SARA 302

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

#### SARA 313

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

### US State Regulations

#### Massachusetts Right To Know

No components are subject to the Massachusetts Right to Know Act.

#### Pennsylvania Right To Know

No components are subject to the Pennsylvania Right to know act

#### New Jersey Right To Know

No components are subject to the New Jersey Right to know act

#### California Prop 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

The components of this product are reported in the following inventories:

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: All components of this product are listed on the EPA TSCA  
8(b) inventory list.

### Inventories

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan),  
KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TSCA (USA)

## SECTION 16. OTHER INFORMATION

Revision Date : 2015.06.15

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

# MATERIAL SAFETY DATA SHEET

# CLARIANT

**Licowax E Pdr**

Page 1

Substance key: SXR021324  
Version : 2 - 18 / USA

Revision Date: 02/09/2014  
Date of printing :02/10/2015

## Section 01 - Product and company identification

**TSCA STATUS**  
On / Exempt 6/5/15  
~~R & D Only~~  
**PS / RA** *Mauro*  
*Supplier*

Identification of the company:	Clariant Corporation 4000 Monroe Road Charlotte, NC, 28205 ✓ Telephone No.: +1 704 331 7000
Information of the substance/preparation:	Product Safety 1-704-331-7710
Emergency tel. number:	+1 800-424-9300 CHEMTREC

Trade name:	Licowax E Pdr
Material number:	105199
CAS number:	73138-45-1 ✓
Primary product use:	Industrial uses are not restricted by REACH legislation.
Chemical family:	ester of montanic acids (an acid mixture approx. C24-C34)

## Section 02 - Hazards identification

**Emergency overview:** Yellow to light tan powder.  
May cause mild eye and skin irritation.  
May cause irritation of respiratory tract.  
Minimize dust generation and accumulation.  
Avoid release to the environment.

**Expected Route of entry:**

Inhalation:	May cause irritation of respiratory tract.
Skin contact:	May cause mild skin irritation.
Eye contact:	May cause mild eye irritation
Ingestion:	Not expected to be toxic.
Skin absorption:	Route of exposure unlikely.

**Health effects of exposure:**  
Any available toxicological data is shown in Section 11. No other information was found in the public literature for any effects of exposure and no health evaluation is thus possible.  
Therefore, handle with care and avoid unnecessary exposures.

<b>Known effects on other illnesses:</b>	None known.
<b>Listed carcinogen:</b>	IARC: No NTP: No OSHA: No Other: No

**HMIS:**

Health: 1

Flammability: 1

Reactivity: 0

Personal protection: E

## Section 03 - Composition/information on ingredients

# MATERIAL SAFETY DATA SHEET

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## Hazardous ingredients:

This material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

None under Title III of SARA

## Section 04 - First aid measures

### After Inhalation:

Move the victim to fresh air.

Give oxygen or artificial respiration if needed.

Get immediate medical advice/ attention.

Never give anything by mouth to an unconscious person.

### After contact with skin:

Wash thoroughly with soap and water for 15 minutes. If skin irritation occurs, seek medical attention.

### After contact with eyes:

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Get medical attention immediately if irritation develops and persists.

### After Ingestion:

If swallowed, DO NOT induce vomiting.

Do not give anything to drink.

Call a physician immediately.

### Advice to doctor / Treatment:

None known.

## Section 05 - Fire fighting measures

**Flashpoint:** not applicable

**Lower explosion limit:** not tested.

**Upper explosion limit:** not tested.

**Self ignition:** Method: Expert judgement  
Not relevant

**Ignition temperature:** > 716 °F  
Dust

**Hazardous combustion products:**  
None known.

**Extinguishing media:** Dry powder  
Foam  
Carbon dioxide (CO2)  
Water mist

### Special fire fighting procedure:

Exercise caution when fighting any chemical fire. Use NIOSH approved self-contained breathing apparatus and full protective clothing.

**Unusual fire and explosion hazards:** Electrical grounding of equipment is required to prevent possible dust explosion. Emits toxic fumes under fire conditions.

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Licowax E Pdr

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## Section 06 - Accidental release measures

### Steps to be taken in case of spill or leak:

Wearing appropriate personal protective equipment, contain spill and collect into a suitable container.

Prevent from entering into soil, ditches, sewers, waterways and/or groundwater.

## Section 07 - Handling and storage

### Advice on safe handling:

Avoid dust formation. Keep away from sources of ignition. Lead off electrostatic charges.

Avoid inhalation, ingestion and contact with skin and eyes.

Wash thoroughly after handling.

### Further info on storage conditions:

Store in original container.

Keep container tightly closed.

Store in a cool, dry, well-ventilated area.

## Section 08 - Exposure controls / personal protection

### Respiratory protection:

Use NIOSH/MSHA approved respirators following manufacturer's recommendations where dust or fume may be generated.

### Hand protection:

Butyl Rubber, PVC Or Neoprene.

### Eye protection:

Safety glasses or chemical splash goggles.

### Other protective equipment:

Wear suitable protective equipment.

### Advice on system design:

Local ventilation recommended - mechanical ventilation may be used.

## Section 09 - Physical and chemical properties

### Form:

powder

### Color:

white yellowish

### Odor:

not specified

### Odor limit:

cannot be determined

### pH:

approx. 7 (20 °C)  
saturated aqueous solution

### Solubility in water:

24 mg/l (20 °C)  
Method: OECD Test Guideline 105

### Miscibility with water:

practically insoluble

### Soluble in ... :

not tested.

### Solubility / qualitative:

not tested.



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<b>Density:</b>	1.02 g/cm <sup>3</sup> (20 °C) Method: ISO 1183
<b>Melting point :</b>	approx. 170 °F Method: DSC
<b>Boiling point :</b>	Decomposes below the boiling point.
<b>Sublimation point :</b>	not applicable
<b>Vapor pressure:</b>	0 Torr (25 °C) Method: 92/69/EEC, A.4.
<b>Relative vapor density:</b>	not applicable
<b>Partitioning coef. octanol/water:</b>	0.9 ( 20 °C) Method: other (calculated)
<b>Viscosity / (dynamic):</b>	ca. 20 mPa.s (100 °C) Method: DIN 53019
<b>Viscosity / (kinematic):</b>	not applicable

## Section 10 - Stability and reactivity

<b>Thermal decomposition:</b>	> 180 °C Method: DSC
<b>Chemical stability:</b>	Stable under normal conditions.
<b>Hazardous Polymerization:</b>	Hazardous polymerisation does not occur. Conditions to avoid: None known.
<b>Conditions to avoid:</b>	Keep away from heat. Keep away from flames and sparks.

## Section 11 - Toxicological information

### Product information:

<b>Acute oral toxicity:</b>	LD50 > 2,000 mg/kg (rat) Method: OECD Test Guideline 401
<b>Acute inhalation toxicity:</b>	not required
<b>Acute dermal toxicity:</b>	LD50 > 2,000 mg/kg (rat) Method: OECD Test Guideline 402
<b>Skin Irritation:</b>	non-irritant (4 h, rabbit) Method: OECD Test Guideline 404
<b>Eye Irritation:</b>	non-irritant (24 h, rabbit eye) Method: OECD Test Guideline 405
<b>Sensitization:</b>	non-sensitizing (mouse) Method: OECD Test Guideline 429

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## Section 12 - Ecological information

### Product Information:

#### Biodegradation:

54 % (28 d, BOD in % of theoretical OD)  
Not readily biodegradable.  
Method: OECD Test Guideline 301D

#### Fish toxicity:

LC50 > 10 g/l (96 h, Danio rerio (zebra fish))  
Method: OECD Test Guideline 203  
The details of the toxic effect relate to the nominal concentration.  
LC0 10 g/l (96 h, Danio rerio (zebra fish))  
Method: OECD Test Guideline 203  
The details of the toxic effect relate to the nominal concentration.

#### Daphnia toxicity:

EC50 > 10 g/l (48 h, Daphnia magna (Water flea))  
Method: OECD Test Guideline 202  
The details of the toxic effect relate to the nominal concentration.  
NOEC 10 g/l (48 h, Daphnia magna (Water flea))  
Method: OECD Test Guideline 202  
The details of the toxic effect relate to the nominal concentration.

#### Algae toxicity:

EC10 (Growth rate) > 320 mg/l (72 h, Desmodesmus subspicatus (Scenedesmus subspicatus))  
Method: OECD Test Guideline 201  
The details of the toxic effect relate to the nominal concentration.  
EC20 (Growth rate) > 320 mg/l (72 h, Desmodesmus subspicatus (Scenedesmus subspicatus))  
Method: OECD Test Guideline 201  
The details of the toxic effect relate to the nominal concentration.  
EC50 (Growth rate) > 320 mg/l (72 h, Desmodesmus subspicatus (Scenedesmus subspicatus))  
Method: OECD Test Guideline 201  
The details of the toxic effect relate to the nominal concentration.  
EC10 (Biomass) 100 - 320 mg/l (72 h, Desmodesmus subspicatus (Scenedesmus subspicatus))  
Method: OECD Test Guideline 201  
The details of the toxic effect relate to the nominal concentration.  
EC20 (Biomass) > 320 mg/l (72 h, Desmodesmus subspicatus (Scenedesmus subspicatus))  
Method: OECD Test Guideline 201  
The details of the toxic effect relate to the nominal concentration.  
EC50 (Biomass) > 320 mg/l (72 h, Desmodesmus subspicatus (Scenedesmus subspicatus))  
Method: OECD Test Guideline 201  
The details of the toxic effect relate to the nominal concentration.

#### Bacteria toxicity:

EC10 > 10 g/l (3 h, activated sludge, domestic)  
Method: OECD Test Guideline 209  
The details of the toxic effect relate to the nominal concentration.

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EC50 > 10 g/l (3 h, activated sludge, domestic)  
Method: OECD Test Guideline 209  
The details of the toxic effect relate to the nominal concentration.  
NOEC 10 g/l (3 h, activated sludge, domestic)  
Method: OECD Test Guideline 209  
The details of the toxic effect relate to the nominal concentration.

**Remarks:**

The product should not be allowed to enter drains, water courses or the soil.

## Section 13 - Disposal considerations

**Waste disposal information:**

Dispose of spilled or waste product, contaminated soil and other contaminated materials in licensed landfill or treatment facility in accordance with all local, state, and federal regulations.

**RCRA hazardous waste:**

No -- Not as sold.

## Section 14 - Transport information

DOT	not restricted
IATA	not restricted
IMDG	not restricted

## Section 15 - Regulatory Information

**TSCA Status:**

All components of this product are listed on the TSCA Inventory. ✓

**SARA (section 311/312):**

Reactive hazard:	no
Pressure hazard:	no
Fire hazard:	no
Immediate/acute:	no
Delayed/chronic:	no

**SARA 313 Information:**

This product does not contain any toxic chemical listed under Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986.

**Clean Water Act:**

Contains no known priority pollutants at concentrations greater than 0.1%.

**FDA:**

Permitted for Use per Section:	21 CFR 178.3770, 21 CFR 172.210
--------------------------------	---------------------------------

Subject to limitations, this product may be used in compliance with the Federal Food, Drug, and Cosmetic Act and all applicable food additive regulations.

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## Section 16 - Other information

### Other precautions:

Handle with care. Organic dusts have the potential to be explosive with static spark or flame initiation.

### Label information:

#### CAUTION!

Product dust may be irritating to eyes, skin and respiratory system. Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

Avoid contact with skin, eyes and clothing. Wash thoroughly after handling. Use with adequate ventilation or appropriate respiratory protection. Keep container closed when not in use.

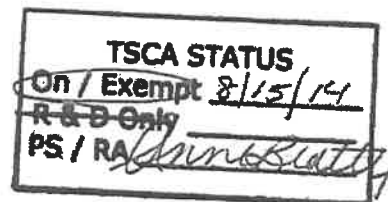
In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician if irritation develops or persists. In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately if irritation develops and persists. If inhaled, remove to fresh air. If breathing is difficult, give oxygen. Call a physician. If swallowed, DO NOT induce vomiting. Get medical attention. Never give anything by mouth to an unconscious person.

This information is supplied under the OSHA Hazard Communication Standard, 29 CFR 1910.1200, and is offered in good faith based on data available to us that we believe to be true and accurate. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable to the material. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate for that use. No warranty, express or implied, is made regarding the accuracy of this data, the hazards connected with the use of the material, or the results to be obtained from the use thereof. We assume no responsibility for damage or injury from the use of the product described herein. Data provided here are typical and not intended for use as product specifications.



The Chemical Company

112\*14297



## Safety Data Sheet

### Irganox® 1010 ED

Revision date : 2014/07/23

Version: 3.0

Page: 1/10  
(50265154/SDS GEN US/EN)

100% 6683-19-8  
Confirmed by matt  
Fender 10/12/12

Not listed  
on new SDS  
b/c non-haz  
- see attached-  
for product  
info

#### 1. Identification

Product identifier used on the label

#### Irganox® 1010 ED

##### Recommended use of the chemical and restriction on use

Unsuitable for use: This material is not intended for use in products for which prolonged contact with mucous membranes, body fluids or abraded skin, or implantation within the human body, is specifically intended, unless the finished product has been tested in accordance with nationally and internationally applicable safety testing requirements. Because of the wide range of such potential uses, we are not able to recommend this material as safe and effective for such uses and assume no liability for such uses.

Recommended use\*: Antioxidant / Stabilizer

\* The "Recommended use" identified for this product is provided solely to comply with a US Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

##### Details of the supplier of the safety data sheet

Company:  
BASF CORPORATION  
100 Park Avenue  
Florham Park, NJ 07932, USA

Telephone: +1 973 245-6000

##### Emergency telephone number

CHEMTREC: 1-800-424-9300  
BASF HOTLINE: 1-800-832-HELP (4357)

##### Other means of identification

Synonyms: Sterically hindered phenol

#### 2. Hazards Identification

According to Regulation 2012 OSHA Hazard Communication Standard: 29 CFR Part 1910.1200

##### Classification of the product

No need for classification according to GHS criteria for this product.

06081355

New Martinsville  
Texin / Polyol units

# Safety Data Sheet

## Irganox® 1010 ED

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(50265154/SDS\_GEN\_US/EN)

### Label elements

The product does not require a hazard warning label in accordance with GHS criteria.

### Hazards not otherwise classified

The product is under certain conditions capable of dust explosion.

#### Labeling of special preparations (GHS):

This product is not combustible in the form in which it is shipped by the manufacturer, but may form a combustible dust through downstream activities (e.g. grinding, pulverizing) that reduce its particle size.

#### According to Regulation 1994 OSHA Hazard Communication Standard: 29 CFR Part 1910.1200

### Emergency overview

#### NOTICE:

May cause mechanical irritation to eyes, skin and respiratory system.

AVOID CREATING DUST.

Take precautionary measures against static discharges.

Use NIOSH approved respirator as needed to mitigate exposure.

## 3. Composition / Information on Ingredients

#### According to Regulation 2012 OSHA Hazard Communication Standard: 29 CFR Part 1910.1200

This product does not contain any components classified as hazardous under the referenced regulation.

## 4. First-Aid Measures

### Description of first aid measures

#### General advice:

Remove contaminated clothing.

#### If inhaled:

If difficulties occur after dust has been inhaled, remove to fresh air and seek medical attention.

#### If on skin:

Wash thoroughly with soap and water.

If irritation develops, seek medical attention.

#### If in eyes:

Wash affected eyes for at least 15 minutes under running water with eyelids held open.

If irritation develops, seek medical attention.

#### If swallowed:

Rinse mouth and then drink plenty of water. Do not induce vomiting. Immediate medical attention required.

# Safety Data Sheet

## Irganox® 1010 ED

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(50265154/SDS GEN US/EN)

### Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

Further important symptoms and effects are so far not known.

### Indication of any immediate medical attention and special treatment needed

#### Note to physician

Treatment:

Treat according to symptoms (decontamination, vital functions), no known specific antidote.

---

## 5. Fire-Fighting Measures

### Extinguishing media

Suitable extinguishing media:  
dry powder, carbon dioxide, alcohol-resistant foam

Unsuitable extinguishing media for safety reasons:  
water jet

### Special hazards arising from the substance or mixture

Hazards during fire-fighting:

harmful vapours

Evolution of fumes/fog. The substances/groups of substances mentioned can be released in case of fire.

### Advice for fire-fighters

Protective equipment for fire-fighting:

Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

### Further information:

Dusty conditions may ignite explosively in the presence of an ignition source causing flash fire.

### Impact Sensitivity:

Number of positive reactions: 0

Assessment: not shock-sensitive

---

## 6. Accidental release measures

### Further accidental release measures:

Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Avoid the formation and build-up of dust - danger of dust explosion. Dust in sufficient concentration can result in an explosive mixture in air. Handle to minimize dusting and eliminate open flame and other sources of ignition.

### Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Use personal protective clothing.

### Environmental precautions

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## Irganox® 1010 ED

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(50265154/SDS GEN US/EN)

Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

### Methods and material for containment and cleaning up

Nonsparking tools should be used.

## 7. Handling and Storage

### Precautions for safe handling

Breathing must be protected when large quantities are decanted without local exhaust ventilation.

Closed containers should only be opened in well-ventilated areas. Avoid dust formation. Do not use any sparking tools.

### Protection against fire and explosion:

Avoid dust formation. Dust in sufficient concentration can result in an explosive mixture in air. Handle to minimize dusting and eliminate open flame and other sources of ignition. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. Refer to NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids (2013 Edition) for safe handling.

Dust explosion class: Dust explosion class 2 (Kst-value 200 up to 300 bar m s-1).

### Conditions for safe storage, including any incompatibilities

The product in undamaged packing need not be stored separately.

Further information on storage conditions: Keep container tightly closed and dry; store in a cool place.

## 8. Exposure Controls/Personal Protection

### Advice on system design:

It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen deficient environment. Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment). Use only appropriately classified electrical equipment and powered industrial trucks.

### Personal protective equipment

#### Respiratory protection:

Respiratory protection may not be required under normal operating conditions if adequate ventilation is provided.

#### Hand protection:

Wear chemical resistant protective gloves.

#### Eye protection:

Safety glasses with side-shields.



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### Body protection:

Body protection must be chosen based on level of activity and exposure.

### General safety and hygiene measures:

Wear protective clothing as necessary to minimize contact. Handle in accordance with good industrial hygiene and safety practice. Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and Chemical Properties

Form:	pellets	
Odour:	odourless	
Odour threshold:		No applicable information available.
Colour:	white to light green	
pH value:	5.9	( 20 °C)
Melting temperature:	117.1 °C	(approx. 1,013 hPa) (measured)
boiling temperature:	281 °C	( 1,013 hPa) (OECD Guideline 103)
Sublimation point:		No applicable information available.
Flash point:		not relevant
Flammability:	not flammable	(Directive 92/69/EEC, A.10)
Lower explosion limit:		For solids not relevant for classification and labelling.
Upper explosion limit:		For solids not relevant for classification and labelling.
Autoignition:		(See user defined text.) not applicable
Vapour pressure:	0.0133322 hPa	( 20 °C) (measured)
Density:	1,116 g/cm3	( 20 °C)
Bulk density:	500 - 650 kg/m3	
Partitioning coefficient n-octanol/water (log Pow):	> 8	( 25 °C) (Calculation Hansch/Leo)
Self-ignition temperature:		not relevant
Thermal decomposition:	> 350 °C	
Viscosity, dynamic:		not relevant
Solubility in water:	< 0.1 mg/l	( 20 °C)
Evaporation rate:		The product is a non-volatile solid.
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.	

## 10. Stability and Reactivity

### Reactivity

No hazardous reactions if stored and handled as prescribed/indicated.

### Corrosion to metals:

No corrosive effect on metal.

### Oxidizing properties:

Based on its structural properties the product is not classified as oxidizing.

### Dust explosion class:

Dust explosion class 2 (Kst-value 200 up to 300 bar m s-1) (St 2)

### Chemical stability

The product is stable if stored and handled as prescribed/indicated.

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### Possibility of hazardous reactions

In spite of the dedusting carried out for reasons of industrial health the product resp. the fine dust of the product is capable of dust explosion.

### Conditions to avoid

Avoid dust formation. Avoid deposition of dust. Avoid all sources of ignition: heat, sparks, open flame. Avoid electro-static charge.

### Incompatible materials

strong acids, strong bases, strong oxidizing agents

### Hazardous decomposition products

Decomposition products:

No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:

> 350 °C

---

## 11. Toxicological information

### Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

### Acute Toxicity/Effects

#### Acute toxicity

Assessment of acute toxicity: Virtually nontoxic after a single ingestion. Virtually nontoxic by inhalation. Virtually nontoxic after a single skin contact.

#### Oral

Type of value: LD50

Species: rat

Value: > 5,000 mg/kg

#### Inhalation

Type of value: LC0

Species: rat

Value: > 46 mg/l

Exposure time: 1 h

#### Dermal

Type of value: LD50

Species: rat

Value: > 2,000 mg/kg

#### Assessment other acute effects

Assessment of STOT single:

Based on the available information there is no specific target organ toxicity to be expected after a single exposure.

#### Irritation / corrosion

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Assessment of irritating effects: Not irritating to eyes and skin.

### Skin

Species: rabbit

Result: non-irritant

### Eye

Species: rabbit

Result: non-irritant

### Sensitization

Assessment of sensitization: Skin sensitizing effects were not observed in animal studies.

### other

Species: guinea pig

Result: Non-sensitizing.

### Patch-Test

Species: human

No sensitizing effect.

### Aspiration Hazard

No aspiration hazard expected.

## Chronic Toxicity/Effects

### Repeated dose toxicity

Assessment of repeated dose toxicity: No substance-specific organotoxicity was observed after repeated administration to animals.

Repeated oral uptake of the substance did not cause substance-related effects.

### Genetic toxicity

Assessment of mutagenicity: The substance was not mutagenic in bacteria. The substance was not mutagenic in studies with mammals.

The substance was not genotoxic in a test with mammals.

Genetic toxicity in vitro: Ames-test Salmonella typhimurium: with and without metabolic activation negative

### Carcinogenicity

Assessment of carcinogenicity: None of the components in this product at concentrations greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen. No carcinogenic effects reported.

In long-term studies in rats and mice in which the substance was given by feed, a carcinogenic effect was not observed.

### Reproductive toxicity

Assessment of reproduction toxicity: The results of animal studies gave no indication of a fertility impairing effect.

### Teratogenicity

Assessment of teratogenicity: No indications of a developmental toxic / teratogenic effect were seen in animal studies.

## Symptoms of Exposure

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

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Further important symptoms and effects are so far not known.

## 12. Ecological Information

### Toxicity

#### Aquatic toxicity

Assessment of aquatic toxicity:

No toxic effects occur within the range of solubility.

#### Toxicity to fish

LC50 (96 h) > 100 mg/l, Brachydanio rerio (OECD Guideline 203)

#### Aquatic invertebrates

EC50 (24 h) > 86 mg/l, Daphnia magna (OECD Guideline 202, part 1)

Tested above maximum solubility.

#### Aquatic plants

EC50 (72 h) > 100 mg/l, Scenedesmus sp. (Guideline 92/69/EEC, C.3)

#### Chronic toxicity to fish

No data available regarding toxicity to fish.

#### Chronic toxicity to aquatic invertebrates

No observed effect concentration (21 d)  $\geq$  2 mg/l, Daphnia magna (OECD Guideline 211, semistatic)

The product has low solubility in the test medium. A saturated solution has been tested. Limit concentration test only (LIMIT test). The details of the toxic effect relate to the nominal concentration. No toxic effects occur within the range of solubility.

#### Assessment of terrestrial toxicity

No data available concerning terrestrial toxicity.

### Microorganisms/Effect on activated sludge

#### Toxicity to microorganisms

OECD Guideline 209 activated sludge/EC50 (3 h): > 100 mg/l

### Persistence and degradability

#### Assessment biodegradation and elimination (H2O)

The product is virtually insoluble in water and can thus be separated from water mechanically in suitable effluent treatment plants.

#### Elimination information

45 % (28 d) (OECD 303A; ISO 11733; 92/69 EEC, V, C.10) Moderately/partially eliminated from water.

5 % (28 d) (OECD 301B; ISO 9439; 92/69/EEC, C.4-C) Not readily biodegradable (by OECD criteria).

#### Assessment of stability in water

Study technically not feasible.

#### Information on Stability in Water (Hydrolysis)

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approx.  $t_{1/2}$  2.06 a (25 °C), (pH7)

In contact with water the substance will hydrolyse slowly.

### Assessment photodegradation

After evaporation or exposure to the air, the product will be rapidly degraded by photochemical processes.

### **Bioaccumulative potential**

#### Bioaccumulation potential

Bioconcentration factor: < 2.3 (OECD Guideline 305 C)

### **Mobility in soil**

#### Assessment transport between environmental compartments

The substance will not evaporate into the atmosphere from the water surface.  
Adsorption to solid soil phase is expected.

### **Additional information**

Other ecotoxicological advice:

Do not discharge product into the environment without control.

---

## 13. Disposal considerations

### **Waste disposal of substance:**

Do not discharge into drains/surface waters/groundwater. Dispose of in accordance with national, state and local regulations.

### **Container disposal:**

Dispose of in accordance with national, state and local regulations. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.

---

## 14. Transport Information

### **Land transport**

USDOT

Not classified as a dangerous good under transport regulations

### **Sea transport**

IMDG

Not classified as a dangerous good under transport regulations

### **Air transport**

IATA/ICAO

Not classified as a dangerous good under transport regulations

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## 15. Regulatory Information

### Federal Regulations

Registration status:

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Chemical TSCA, US released / listed

Cosmetic TSCA, US released / exempt

EPCRA 311/312 (Hazard categories): Not hazardous;

### NFPA Hazard codes:

Health : 1 Fire: 1 Reactivity: 0 Special:

### HMIS III rating

Health: 1 Flammability: 1 Physical hazard: 0

## 16. Other Information

### SDS Prepared by:

BASF NA Product Regulations

SDS Prepared on: 2014/07/23

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**MATERIAL SAFETY DATA SHEET**  
**AMERICAN CHEMICAL SERVICE, INC.**

Epox	<b>TSCA STATUS</b>
	<b>On / Exempt</b> 7-8-10
	<b>PS / RA</b> M. Brunson

**Section 1 - Company and Product Identification**

<b>Product Name:</b>	EPOXOL 9-5	
<b>Chemical Name:</b>	Epoxidized Linseed Oil	
<b>Manufacturer:</b>	American Chemical Service, Inc. 420 South Colfax Avenue Griffith, IN 46319 219-924-4359	<b>Emergency Contact</b> 219-924-4370 (8:00am - 4:30pm CST M-F) Chemtrec: 800-424-9300 (24 hours every day)

**Section 2 - Information on Ingredients**

<b>Chemical Name</b>	<b>CAS Number</b>
Epoxidized Linseed Oil	8016-11-3

**Section 3 - Hazard Identification**

<b>Skin Contact:</b>	Prolonged skin contact may cause skin irritation.
<b>Eye Contact:</b>	May cause eye irritation of susceptible persons.
<b>Ingestion:</b>	Effects unknown.
<b>Inhalation:</b>	May cause dizziness.

**Section 4 - First Aid Measures**

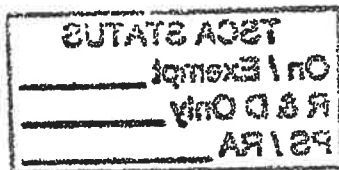
<b>Skin Contact:</b>	Wash with soap and plenty of water.
<b>Eye Contact:</b>	Flush with large amounts of water for at least 15 minutes. If irritation persists contact a physician.
<b>Ingestion:</b>	Rinse mouth and seek medical attention.
<b>Inhalation:</b>	Move individual to fresh air.

**Section 5 - Fire Fighting Measures**

<b>Extinguishing Media:</b>	Carbon Dioxide, Dry Chemical, Water Fog
<b>Special Fire Fighting Procedures:</b>	A MSHA/NIOSH approved self contained breathing apparatus should be worn. Use water spray to cool fire-exposed containers.
<b>Unusual Fire and Explosion Hazards:</b>	Water may cause spattering and frothing.
<b>Thermal Decomposition Products:</b>	Oxides of carbon.

**Section 6 - Accidental Release Measures**

**Steps to be taken in case material is released or spilled:**  
Prevent material from entering sewers and bodies of water. Dike and contain spills with inert material and transfer to containers for disposal.



Epoxol 9-5 4/7/2010

#### Section 7 - Handling and Storage

**Handling Precautions:** Do not get in eyes, on skin, or clothing. Do not take internally. Wash thoroughly after handling. Avoid breathing mist or vapor. Use only with adequate ventilation. Keep away from open flame and fire.

**Storage Requirements:** Containers should be kept tightly closed and stored in cool, dry, well-ventilated area.

#### Section 8 - Personal Protection

**Hand Protection:** Gloves resistant to chemical penetration.

**Respiratory Protection:** None required in normal use.

**Eye Protection:** Splash goggles, eye wash facility in work area.

**Ventilation:** Local exhaust should suffice. Direct exhaust when material becomes heated or fumes are given off.

#### Section 9 - Physical and Chemical Properties

<b>Boiling Point:</b>	Greater than 315°C (600°F)	<b>Specific Gravity:</b>	1.03
<b>Flash Point (PMCC):</b>	224°C (435°F)	<b>Evaporation Rate:</b>	Negligible
<b>Vapor Density:</b>	>10 (Air =1)	<b>Solubility in Water:</b>	<0.1%
<b>Vapor Pressure (25°C):</b>	<0.1 mm Hg	<b>pH:</b>	Not Applicable

**Appearance / Odor:** Viscous light yellow liquid, mild odor.

#### Section 10 - Stability and Reactivity

**Stability:** Stable under normal conditions.

**Conditions to Avoid:** High temperatures, strong oxidizing agents.

**Hazardous Polymerization:** Will not occur under normal circumstances.

#### Section 11 - Toxicological Information

No toxicological information available at this time.

#### Section 12 - Ecological Information

No ecological information available at this time.

#### Section 13 - Disposal Considerations

**Waste Disposal Methods:** Material should be disposed of in accordance with local, state and federal regulations.

#### Section 14 - Transportation Information

Material is not classified as hazardous according to the Department of Transportation.



**Section 15 - Regulatory Information**

**Toxic Substance Control Act (TOSCA):** This product are on the TSCA inventory. ✓  
**Domestic Substance List (DSL):** This product is listed on the DSL inventory of Canada.  
**Australia (AICS):** This product is listed on the AICS inventory of Australia.  
**Europe (EINECS):** This product is listed on the EINECS inventory of Europe.

**Superfund Amendments and Reauthorization Act (SARA):**

This product has the following hazards as defined in Section 311/312 of 40 CFR part 372:  
Hazards: None

This product contains the following chemicals subject to the reporting requirements of Section 313 or Title III of SARA and 40 CFR Part 372:  
Ingredients: None

**California Proposition 65:** This product contains the following substances listed as per the Safe Drinking Water and Toxic Enforcement Act of 1986.  
Ingredients: None

**Canadian Environmental Control Act (CEPA):**  
This product contains the following chemicals listed as toxic.  
Ingredients: None

**Section 16 - Other Information**

**Prepared By:** GRM

**Revision Date:** 4/07/10  
**Supersedes:** 10/27/08

# SAFETY DATA SHEET



## 1. Identification

Covestro LLC  
1 Covestro Circle  
Pittsburgh, PA 15205  
USA

### TRANSPORTATION EMERGENCY

CALL CHEMTREC: (800) 424-9300  
INTERNATIONAL: (703) 527-3887

### NON-TRANSPORTATION

Emergency Phone: Call Chemtrec  
Information Phone: (844) 646-0545

Product Name: TEXIN 1049 000000  
Material Number: 852063  
Chemical Family: Aromatic thermoplastic polyurethane  
|| Use: Production of molded plastic articles

## 2. Hazards Identification

### GHS Classification

This product is not hazardous in the form in which it is shipped by the manufacturer.

### GHS Label Elements

Signal word: Warning

Hazard statements: If fine particles are generated during further processing, handling or by other means, product may form combustible dust concentrations in air.

## 3. Composition/Information on Ingredients

### Hazardous Components

There are no hazardous components above the relevant concentration limits according to OSHA HazCom 2012.

## 4. First Aid Measures

### Most Important Symptom(s)/Effect(s)

Material Name: TEXIN 1049 000000

Material Number: 852063

**Acute:** Contact with heated material can cause thermal burns., Causes a slipping hazard if spilled., Vapors released from thermal decomposition may cause eye irritation with symptoms of burning and tearing, as well as respiratory tract irritation.

**Eye Contact**

In case of contact, flush eyes with plenty of lukewarm water. Get medical attention if irritation develops.

**Skin Contact**

Get medical attention if thermal burn occurs.

**Inhalation**

If inhaled, remove to fresh air.

**Ingestion**

Get medical attention.

**Notes to Physician**

In the event of possible diisocyanate exposure: Eyes: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic/steroid preparation as needed. Workplace vapors could produce reversible corneal epithelial edema impairing vision. Skin: Treat symptomatically as for thermal burn. Ingestion: Treat symptomatically. Inhalation: Treatment is essentially symptomatic. An individual having a pulmonary sensitization reaction to this material should be removed from further exposure to any diisocyanate.

**5. Firefighting Measures**

**Suitable Extinguishing Media:** Water, Foam, Dry chemical

**Unsuitable Extinguishing Media:** High Pressure Water Streams

**Fire Fighting Procedure**

Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes.

**Hazardous Decomposition Products**

By Fire and Thermal Decomposition: Carbon Dioxide, hydrogen cyanide, 4,4'-Diphenylmethane Diisocyanate (MDI) Aldehydes, Carbon monoxide, Amines, Nitriles, Nitrogen oxides (NOx), Hydrocarbons

**Unusual Fire/Explosion Hazards**

Toxic and irritating gases/fumes may be given off during burning or thermal decomposition. Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

**6. Accidental Release Measures**

**Spill and Leak Procedures**

If molten, allow material to cool and place into an appropriate marked container for disposal. Sweep up and shovel into suitable containers for disposal. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture as they are released into the atmosphere in sufficient concentrations. Avoid dispersal of dust in the air (e.g., cleaning dust from surfaces with compressed air).

## 7. Handling and Storage

### Handling/Storage Precautions

Handle in accordance with good industrial hygiene and safety practices. Wash thoroughly after handling. Avoid breathing dust. Containers should be kept tightly closed to prevent contamination. Material is hygroscopic and may absorb small amounts of atmospheric moisture. Minimize dust generation and accumulation. Routine housekeeping should be instituted to ensure that dust does not accumulate on surfaces. Solid particulate can generate electrical charging during operations such as unloading from containers and pneumatic transfer. Provide adequate precautions, such as electrical grounding and bonding, where conductive equipment is involved.

### Storage Period:

Not Established

### Storage Temperature

Maximum: 30 °C (86 °F)

### Substances to Avoid

None known.

## 8. Exposure Controls/Personal Protection

### Exposure Limits

Thermoplastic Polyurethane (TPU) is generally non-hazardous under ambient conditions. The following exposure limits do not apply to the product in its supplied form; however, when the product is heated (i.e., during processing or thermal decomposition conditions), there is a potential for the release of 4,4'-diphenylmethane diisocyanate (MDI) vapors.

### 4,4'-Diphenylmethane Diisocyanate (MDI) (101-68-8)

US. ACGIH Threshold Limit Values

Time Weighted Average (TWA): 0.005 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Ceiling Limit Value: 0.02 ppm, 0.2 mg/m<sup>3</sup>

Any component which is listed in section 3 and is not listed in this section does not have a known ACGIH TLV, OSHA PEL or supplier recommended occupational exposure limit.

### Industrial Hygiene/Ventilation Measures

During normal processing, use general dilution and local exhaust as necessary to control airborne vapors, mists, dusts and thermal decomposition products below appropriate airborne concentration standards/guidelines. Special ventilation and personal protective equipment (PPE) is required to control exposure to potentially harmful decomposition products whenever a TPU is heated to temperatures above its decomposition temperature. Examples would include hot knife cutting, grinding, or sawing.

### Respiratory Protection

In the absence of sufficient general dilution or local exhaust ventilation a NIOSH approved air-supplied respirator may be needed during die cleaning, high temperature processing, purging or when thermal decomposition is suspected.

### Hand Protection

Wear heat resistant gloves when handling molten material.

**Eye Protection**

Safety glasses with side-shields

**Skin Protection**

No special skin protection requirements during normal handling and use.

**Additional Protective Measures**

Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product. Purgings should be collected as small flat thin shapes or thin strands to allow for rapid cooling.

**9. Physical and Chemical Properties**

State of Matter:	solid
Appearance:	pellets
Color:	Natural
Odor:	Odorless
Odor Threshold:	No Data Available
pH:	No Data Available
Melting Point:	220 °C (428 °F)
Boiling Point:	No Data Available
Flash Point:	250 °C (482 °F)
Evaporation Rate:	No Data Available
Flammability:	No Data Available
Lower Explosion Limit:	No Data Available
Upper Explosion Limit:	No Data Available
Vapor Pressure:	No Data Available
Vapor Density:	No Data Available
Density:	No Data Available
Relative Vapor Density:	No Data Available
Specific Gravity:	1.1
Solubility in Water:	insoluble
Partition Coefficient: n-octanol/water:	No Data Available
Auto-ignition Temperature:	> 210 °C (> 410 °F)
Decomposition Temperature:	Decomposition begins at 230 °C.
Softening point:	180 °C (356 °F)
Dynamic Viscosity:	No Data Available
Kinematic Viscosity:	No Data Available
Bulk Density:	500 - 700 kg/m <sup>3</sup>
Self Ignition:	not applicable

**10. Stability and Reactivity****Hazardous Reactions**

Hazardous polymerisation does not occur.

**Stability**

Stable

**Materials to Avoid**

None known.

**Conditions to Avoid**  
Generation of dust clouds.

**Hazardous Decomposition Products**

By Fire and Thermal Decomposition: Carbon Dioxide; hydrogen cyanide; 4,4'-Diphenylmethane Diisocyanate (MDI); Aldehydes, Carbon monoxide, Amines, Nitriles, Nitrogen oxides (NOx), Hydrocarbons

**11. Toxicological Information**

**Likely Routes of Exposure:**  
Inhalation  
Skin Contact  
Eye Contact

**Health Effects and Symptoms**

**Acute:** Contact with heated material can cause thermal burns., Causes a slipping hazard if spilled., Vapors released from thermal decomposition may cause eye irritation with symptoms of burning and tearing, as well as respiratory tract irritation.

**Toxicity Data for: TEXIN 1049 000000**

In the event of material decomposition due to exceeding the decomposition temperature of this product, release of MDI may occur.

**Acute Inhalation:**

The following effects reflect the potential health hazards associated with overexposure to MDI. Diisocyanate vapors or mist at concentrations above the TLV or PEL can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Persons with a preexisting, nonspecific bronchial hyperreactivity can respond to concentrations below the TLV or PEL with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure well above the TLV or PEL may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). Chemical or hypersensitivity pneumonitis, with flu-like symptoms (e.g., fever, chills), has also been reported. These symptoms can be delayed up to several hours after exposure. These effects are usually reversible.

**Chronic Inhalation:**

As a result of previous repeated overexposures or a single large dose, certain individuals may develop sensitization to diisocyanates (asthma or asthma-like symptoms) that may cause them to react to a later exposure to diisocyanates at levels well below the TLV or PEL. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath or asthmatic attack, could be immediate or delayed up to several hours after exposure. Extreme asthmatic reactions can be life threatening. Similar to many non-specific asthmatic responses, there are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Sensitization can be permanent. Chronic overexposure to diisocyanates has also been reported to cause lung damage (including fibrosis, decrease in lung function) that may be permanent.

**Carcinogenicity:**

No carcinogenic substances as defined by IARC, NTP and/or OSHA

Material Name: TEXIN 1049 000000

Material Number: 852063

## 12. Ecological Information

### Ecological Data for: TEXIN 1049 000000

No data available for this product.

## 13. Disposal Considerations

### Waste Disposal Method

Waste disposal should be in accordance with existing federal, state and local environmental control laws.

## 14. Transportation Information

### Land transport (DOT)

Non-Regulated

### Sea transport (IMDG)

Non-Regulated

### Air transport (ICAO/IATA)

Non-Regulated

## 15. Regulatory Information

### United States Federal Regulations

**US. Toxic Substances Control Act:** Listed on the TSCA Inventory.

No substances are subject to TSCA 12(b) export notification requirements.

**US. EPA CERCLA Hazardous Substances (40 CFR 302) Components:**

None

**SARA Section 311/312 Hazard Categories:**

Non-hazardous under Section 311/312

**US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III**

**Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A) Components:**

None

**US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III**

**Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required Components:**

None

**US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261):**

Under RCRA, it is the responsibility of the person who generates a solid waste, as defined in 40 CFR 261.2, to determine if that waste is a hazardous waste.

### State Right-To-Know Information

Material Name: TEXIN 1049 000000

Material Number: 852063

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the SDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

**Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:**

<u>Weight percent</u>	<u>Components</u>	<u>CAS-No.</u>
>=1%	Polyurethane Polyether Elastomer	9018-04-6

**California Prop. 65:**

To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

Based on information provided by our suppliers, this product is considered "DRC Conflict Free" as defined by the SEC Conflict Minerals Final Rule (Release No. 34-67716; File No. S7-40-10; Date: 2012-08-22).

**16. Other Information**

The method of hazard communication for Covestro LLC is comprised of Product Labels and Safety Data Sheets.

Contact:	Product Safety Department
Telephone:	(412) 413-2835
SDS Number:	112000032578
Version Date:	01/16/2016
SDS Version:	2.2

This information is furnished without warranty, express or implied. This information is believed to be accurate to the best knowledge of Covestro LLC. The information in this SDS relates only to the specific material designated herein. Covestro LLC assumes no legal responsibility for use of or reliance upon the information in this SDS.

**||** Changes since the last version are highlighted in the margin. This version replaces all previous versions.



# SAFETY DATA SHEET



## 1. Identification

Covestro LLC  
1 Covestro Circle  
Pittsburgh, PA 15205  
USA

### TRANSPORTATION EMERGENCY

CALL CHEMTREC: (800) 424-9300  
INTERNATIONAL: (703) 527-3887

### NON-TRANSPORTATION

Emergency Phone: Call Chemtrec  
Information Phone: (844) 646-0545

Product Name: TEXIN 990 000000  
Material Number: 857278  
Chemical Family: Aromatic thermoplastic polyurethane  
Use: Production of molded plastic articles

## 2. Hazards Identification

### GHS Classification

This product is not hazardous in the form in which it is shipped by the manufacturer.

### GHS Label Elements

Signal word: Warning

Hazard statements: If fine particles are generated during further processing, handling or by other means, product may form combustible dust concentrations in air.

## 3. Composition/Information on Ingredients

### Hazardous Components

There are no hazardous components above the relevant concentration limits according to OSHA HazCom 2012.

## 4. First Aid Measures

### Most Important Symptom(s)/Effect(s)

Acute: Contact with heated material can cause thermal burns., Causes a slipping hazard if spilled., Vapors released from thermal decomposition may cause eye irritation with symptoms of burning and

Material Name: TEXIN 990 000000

Material Number: 857278

tearing, as well as respiratory tract irritation.

**Eye Contact**

In case of contact, flush eyes with plenty of lukewarm water. Get medical attention if irritation develops.

**Skin Contact**

Get medical attention if thermal burn occurs.

**Inhalation**

If inhaled, remove to fresh air.

**Ingestion**

Get medical attention.

**Notes to Physician**

In the event of possible diisocyanate exposure: Eyes: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic/steroid preparation as needed. Workplace vapors could produce reversible corneal epithelial edema impairing vision. Skin: Treat symptomatically as for thermal burn. Ingestion: Treat symptomatically. Inhalation: Treatment is essentially symptomatic. An individual having a pulmonary sensitization reaction to this material should be removed from further exposure to any diisocyanate.

**5. Firefighting Measures**

**Suitable Extinguishing Media:** Water, Foam, Dry chemical

**Unsuitable Extinguishing Media:** High Pressure Water Streams

**Fire Fighting Procedure**

Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes.

**Hazardous Decomposition Products**

By Fire and Thermal Decomposition: ; Carbon Dioxide; hydrogen cyanide; 4,4'-Diphenylmethane Diisocyanate (MDI) Aldehydes, Carbon monoxide, Amines, Nitriles, Nitrogen oxides (NOx), Hydrocarbons

**Unusual Fire/Explosion Hazards**

Toxic and irritating gases/fumes may be given off during burning or thermal decomposition. Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

**6. Accidental Release Measures****Spill and Leak Procedures**

If molten, allow material to cool and place into an appropriate marked container for disposal. Sweep up and shovel into suitable containers for disposal. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture as they are released into the atmosphere in sufficient concentrations. Avoid dispersal of dust in the air (e.g., cleaning dust from surfaces with compressed air).

**7. Handling and Storage**

**Handling/Storage Precautions**

Handle in accordance with good industrial hygiene and safety practices. Wash thoroughly after handling. Avoid breathing dust. Containers should be kept tightly closed to prevent contamination. Material is hygroscopic and may absorb small amounts of atmospheric moisture. Minimize dust generation and accumulation. Routine housekeeping should be instituted to ensure that dust does not accumulate on surfaces. Solid particulate can generate electrical charging during operations such as unloading from containers and pneumatic transfer. Provide adequate precautions, such as electrical grounding and bonding, where conductive equipment is involved.

**Storage Period:**

Not Established

**Storage Temperature**

Maximum: 30 °C (86 °F)

**Substances to Avoid**

None known.

**8. Exposure Controls/Personal Protection****Exposure Limits**

Thermoplastic Polyurethane (TPU) is generally non-hazardous under ambient conditions. The following exposure limits do not apply to the product in its supplied form; however, when the product is heated (i.e., during processing or thermal decomposition conditions), there is a potential for the release of 4,4'-diphenylmethane diisocyanate (MDI) vapors.

**4,4'-Diphenylmethane Diisocyanate (MDI)**

US. ACGIH Threshold Limit Values

Time Weighted Average (TWA): 0.005 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Ceiling Limit Value: 0.02 ppm, 0.2 mg/m<sup>3</sup>

Any component which is listed in section 3 and is not listed in this section does not have a known ACGIH TLV, OSHA PEL or supplier recommended occupational exposure limit.

**Industrial Hygiene/Ventilation Measures**

During normal processing, use general dilution and local exhaust as necessary to control airborne vapors, mists, dusts and thermal decomposition products below appropriate airborne concentration standards/guidelines. Special ventilation and personal protective equipment (PPE) is required to control exposure to potentially harmful decomposition products whenever a TPU is heated to temperatures above its decomposition temperature. Examples would include hot knife cutting, grinding, or sawing.

**Respiratory Protection**

In the absence of sufficient general dilution or local exhaust ventilation a NIOSH approved air-supplied respirator may be needed during die cleaning, high temperature processing, purging or when thermal decomposition is suspected.

**Hand Protection**

Wear heat resistant gloves when handling molten material.

**Eye Protection**

Safety glasses with side-shields

Material Name: TEXIN 990 000000

Material Number: 857278

**Skin Protection**

No special skin protection requirements during normal handling and use.

**Additional Protective Measures**

Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product. Purgings should be collected as small flat thin shapes or thin strands to allow for rapid cooling.

**9. Physical and Chemical Properties**

State of Matter:	solid
Appearance:	pellets
Color:	Natural
Odor:	Odorless
Odor Threshold:	No Data Available
pH:	No Data Available
Melting Point:	220 °C (428 °F)
Boiling Point:	No Data Available
Flash Point:	250 °C (482 °F)
Evaporation Rate:	No Data Available
Flammability:	No Data Available
Lower Explosion Limit:	No Data Available
Upper Explosion Limit:	No Data Available
Vapor Pressure:	No Data Available
Vapor Density:	No Data Available
Density:	No Data Available
Relative Vapor Density:	No Data Available
Specific Gravity:	1.1
Solubility in Water:	insoluble
Partition Coefficient: n-octanol/water:	No Data Available
Auto-ignition Temperature:	> 210 °C (> 410 °F)
Decomposition Temperature:	Decomposition begins at 230 °C.
Softening point:	180 °C (356 °F)
Dynamic Viscosity:	No Data Available
Kinematic Viscosity:	No Data Available
Bulk Density:	500 - 700 kg/m <sup>3</sup>
Self Ignition:	not applicable

**10. Stability and Reactivity****Hazardous Reactions**

Hazardous polymerisation does not occur.

**Stability**

Stable

**Materials to Avoid**

None known.

**Conditions to Avoid**

Generation of dust clouds.

**Hazardous Decomposition Products**

By Fire and Thermal Decomposition: Carbon Dioxide; hydrogen cyanide; 4,4'-Diphenylmethane Diisocyanate (MDI); Aldehydes, Carbon monoxide, Amines, Nitriles, Nitrogen oxides (NOx), Hydrocarbons

**11. Toxicological Information****Likely Routes of Exposure:**

Inhalation  
Skin Contact  
Eye Contact

**Health Effects and Symptoms**

**Acute:** Contact with heated material can cause thermal burns., Causes a slipping hazard if spilled., Vapors released from thermal decomposition may cause eye irritation with symptoms of burning and tearing, as well as respiratory tract irritation.

**Toxicity Data for: TEXIN 990 000000**

In the event of material decomposition due to exceeding the decomposition temperature of this product, release of MDI may occur.

**Acute Inhalation:**

The following effects reflect the potential health hazards associated with overexposure to MDI. Diisocyanate vapors or mist at concentrations above the TLV or PEL can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Persons with a preexisting, nonspecific bronchial hyperreactivity can respond to concentrations below the TLV or PEL with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure well above the TLV or PEL may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). Chemical or hypersensitivity pneumonitis, with flu-like symptoms (e.g., fever, chills), has also been reported. These symptoms can be delayed up to several hours after exposure. These effects are usually reversible.

**Chronic Inhalation:**

As a result of previous repeated overexposures or a single large dose, certain individuals may develop sensitization to diisocyanates (asthma or asthma-like symptoms) that may cause them to react to a later exposure to diisocyanates at levels well below the TLV or PEL. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath or asthmatic attack, could be immediate or delayed up to several hours after exposure. Extreme asthmatic reactions can be life threatening. Similar to many non-specific asthmatic responses, there are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Sensitization can be permanent. Chronic overexposure to diisocyanates has also been reported to cause lung damage (including fibrosis, decrease in lung function) that may be permanent.

**Carcinogenicity:**

No carcinogenic substances as defined by IARC, NTP and/or OSHA

## 12. Ecological Information

Ecological Data for: TEXIN 990 000000

No data available for this product.

## 13. Disposal Considerations

### Waste Disposal Method

Waste disposal should be in accordance with existing federal, state and local environmental control laws.

## 14. Transportation Information

### Land transport (DOT)

Non-Regulated

### Sea transport (IMDG)

Non-Regulated

### Air transport (ICAO/IATA)

Non-Regulated

## 15. Regulatory Information

### United States Federal Regulations

**US. Toxic Substances Control Act:** Listed on the TSCA Inventory.

No substances are subject to TSCA 12(b) export notification requirements.

**US. EPA CERCLA Hazardous Substances (40 CFR 302) Components:**

None

**SARA Section 311/312 Hazard Categories:**

Non-hazardous under Section 311/312

**US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III**

**Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A) Components:**

None

**US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III**

**Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required Components:**

None

**US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261):**

Under RCRA, it is the responsibility of the person who generates a solid waste, as defined in 40 CFR 261.2, to determine if that waste is a hazardous waste.

### State Right-To-Know Information

Material Name: TEXIN 990 000000

Material Number: 857278

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the SDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

**Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:**

<u>Weight percent</u>	<u>Components</u>	<u>CAS-No.</u>
>=1%	Polyurethane Polyether Elastomer	9018-04-6

**California Prop. 65:**

To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

**CFATS (Chemical Facility Anti-Terrorism Standards) Chemicals**

To the best of our knowledge, this product does not contain Appendix A Chemicals of Interest (COI), at or above the Screening Threshold Quantity (STQ), as defined by the Department of Homeland Security Chemical Facility Anti-terrorism Standard (CFATS, 6 CFR Part 27).

Based on information provided by our suppliers, this product is considered "DRC Conflict Free" as defined by the SEC Conflict Minerals Final Rule (Release No. 34-67716; File No. S7-40-10; Date: 2012-08-22).

**16. Other Information**

The method of hazard communication for Covestro LLC is comprised of product labels and safety data sheets. Safety data sheets for all of our products and general product declarations are available for download at [www.productsafetyfirst.covestro.com](http://www.productsafetyfirst.covestro.com).

Contact:	Product Safety Department
Telephone:	(412) 413-2835
SDS Number:	112000024104
Version Date:	02/23/2016
SDS Version:	2.1

This information is furnished without warranty, express or implied. This information is believed to be accurate to the best knowledge of Covestro LLC. The information in this SDS relates only to the specific material designated herein. Covestro LLC assumes no legal responsibility for use of or reliance upon the information in this SDS.

|| Changes since the last version are highlighted in the margin. This version replaces all previous versions.

# SAFETY DATA SHEET



## 1. Identification

Covestro LLC  
formerly Bayer MaterialScience LLC  
1 Covestro Circle  
Pittsburgh, PA 15205  
USA

### TRANSPORTATION EMERGENCY

CALL CHEMTREC: (800) 424-9300  
INTERNATIONAL: (703) 527-3887

### NON-TRANSPORTATION

Emergency Phone: Call Chemtrec  
Information Phone: (844) 646-0545

Product Name: TEXIN 990 R 000000  
Material Number: 516276  
Chemical Family: Aromatic thermoplastic polyurethane  
|| Use: Production of molded plastic articles

## 2. Hazards Identification

### GHS Classification

This product is not hazardous in the form in which it is shipped by the manufacturer.

### GHS Label Elements

Signal word: Warning

Hazard statements: If fine particles are generated during further processing, handling or by other means, product may form combustible dust concentrations in air.

## 3. Composition/Information on Ingredients

### Hazardous Components

There are no hazardous components above the relevant concentration limits according to OSHA HazCom 2012.

## 4. First Aid Measures

### Most Important Symptom(s)/Effect(s)

Material Name: TEXIN 990 R 000000

Material Number: 516276



**Acute:** Contact with heated material can cause thermal burns., Causes a slipping hazard if spilled., Vapors released from thermal decomposition may cause eye irritation with symptoms of burning and tearing, as well as respiratory tract irritation.

**Eye Contact**

In case of contact, flush eyes with plenty of lukewarm water. Get medical attention if irritation develops.

**Skin Contact**

Get medical attention if thermal burn occurs.

**Inhalation**

If inhaled, remove to fresh air.

**Ingestion**

Get medical attention.

**Notes to Physician**

In the event of possible diisocyanate exposure: Eyes: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic/steroid preparation as needed. Workplace vapors could produce reversible corneal epithelial edema impairing vision. Skin: Treat symptomatically as for thermal burn. Ingestion: Treat symptomatically. Inhalation: Treatment is essentially symptomatic. An individual having a pulmonary sensitization reaction to this material should be removed from further exposure to any diisocyanate.

## 5. Firefighting Measures

**Suitable Extinguishing Media:** Water, Foam, Dry chemical

**Unsuitable Extinguishing Media:** High Pressure Water Streams

**Fire Fighting Procedure**

Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes.

**Hazardous Decomposition Products**

By Fire and Thermal Decomposition: Carbon Dioxide, hydrogen cyanide, 4,4'-Diphenylmethane diisocyanate (MDI) Aldehydes, Carbon monoxide, Amines, Nitriles, Nitrogen oxides (NO<sub>x</sub>), Hydrocarbons

**Unusual Fire/Explosion Hazards**

Toxic and irritating gases/fumes may be given off during burning or thermal decomposition. Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

## 6. Accidental Release Measures

**Spill and Leak Procedures**

If molten, allow material to cool and place into an appropriate marked container for disposal. Sweep up and shovel into suitable containers for disposal. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture as they are released into the atmosphere in sufficient concentrations. Avoid dispersal of dust in the air (e.g., cleaning dust from surfaces with compressed air).

## 7. Handling and Storage

### Handling/Storage Precautions

Handle in accordance with good industrial hygiene and safety practices. Wash thoroughly after handling. Avoid breathing dust. Containers should be kept tightly closed to prevent contamination. Material is hygroscopic and may absorb small amounts of atmospheric moisture. Minimize dust generation and accumulation. Routine housekeeping should be instituted to ensure that dust does not accumulate on surfaces. Solid particulate can generate electrical charging during operations such as unloading from containers and pneumatic transfer. Provide adequate precautions, such as electrical grounding and bonding, where conductive equipment is involved.

### Storage Period:

Not Established

### Storage Temperature

Maximum: 30 °C (86 °F)

### Substances to Avoid

None known.

## 8. Exposure Controls/Personal Protection

### Exposure Limits

Thermoplastic Polyurethane (TPU) is generally non-hazardous under ambient conditions. The following exposure limits do not apply to the product in its supplied form; however, when the product is heated (i.e., during processing or thermal decomposition conditions), there is a potential for the release of 4,4'-diphenylmethane diisocyanate (MDI) vapors.

#### 4,4'-Diphenylmethane Diisocyanate (MDI) (101-68-8)

US. ACGIH Threshold Limit Values

Time Weighted Average (TWA): 0.005 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Ceiling Limit Value: 0.02 ppm, 0.2 mg/m<sup>3</sup>

Any component which is listed in section 3 and is not listed in this section does not have a known ACGIH TLV, OSHA PEL or supplier recommended occupational exposure limit.

### Industrial Hygiene/Ventilation Measures

During normal processing, use general dilution and local exhaust as necessary to control airborne vapors, mists, dusts and thermal decomposition products below appropriate airborne concentration standards/guidelines. Special ventilation and personal protective equipment (PPE) is required to control exposure to potentially harmful decomposition products whenever a TPU is heated to temperatures above its decomposition temperature. Examples would include hot knife cutting, grinding, or sawing.

### Respiratory Protection

In the absence of sufficient general dilution or local exhaust ventilation a NIOSH approved air-supplied respirator may be needed during die cleaning, high temperature processing, purging or when thermal decomposition is suspected.

### Hand Protection

Wear heat resistant gloves when handling molten material.

**Eye Protection**

Safety glasses with side-shields

**Skin Protection**

No special skin protection requirements during normal handling and use.

**Additional Protective Measures**

Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product. Purgings should be collected as small flat thin shapes or thin strands to allow for rapid cooling.

**9. Physical and Chemical Properties**

State of Matter:	solid
Appearance:	pellets
Color:	Natural
Odor:	Odorless
Odor Threshold:	No Data Available
pH:	No Data Available
Melting Point:	220 °C (428 °F)
Boiling Point:	No Data Available
Flash Point:	250 °C (482 °F)
Evaporation Rate:	No Data Available
Flammability:	No Data Available
Lower Explosion Limit:	No Data Available
Upper Explosion Limit:	No Data Available
Vapor Pressure:	No Data Available
Vapor Density:	No Data Available
Density:	No Data Available
Relative Vapor Density:	No Data Available
Specific Gravity:	1.1
Solubility in Water:	insoluble
Partition Coefficient: n-octanol/water:	No Data Available
Auto-ignition Temperature:	> 210 °C (> 410 °F)
Decomposition Temperature:	Decomposition begins at 230 °C.
Softening point:	180 °C (356 °F)
Dynamic Viscosity:	No Data Available
Kinematic Viscosity:	No Data Available
Bulk Density:	500 - 700 kg/m <sup>3</sup>
Self Ignition:	not applicable

**10. Stability and Reactivity****Hazardous Reactions**

Hazardous polymerisation does not occur.

**Stability**

Stable

**Materials to Avoid**

None known.

**Conditions to Avoid**  
Generation of dust clouds.

**Hazardous Decomposition Products**

By Fire and Thermal Decomposition: Carbon Dioxide; hydrogen cyanide; 4,4'-Diphenylmethane Diisocyanate (MDI); Aldehydes, Carbon monoxide, Amines, Nitriles, Nitrogen oxides (NO<sub>x</sub>), Hydrocarbons

**11. Toxicological Information**

**Likely Routes of Exposure:**  
Inhalation  
Skin Contact  
Eye Contact

**Health Effects and Symptoms**

**Acute:** Contact with heated material can cause thermal burns., Causes a slipping hazard if spilled., Vapors released from thermal decomposition may cause eye irritation with symptoms of burning and tearing, as well as respiratory tract irritation.

**Toxicity Data for: TEXIN 990 R 000000**

In the event of material decomposition due to exceeding the decomposition temperature of this product, release of MDI may occur.

**Acute Inhalation:**

The following effects reflect the potential health hazards associated with overexposure to MDI. Diisocyanate vapors or mist at concentrations above the TLV or PEL can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Persons with a preexisting, nonspecific bronchial hyperreactivity can respond to concentrations below the TLV or PEL with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure well above the TLV or PEL may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). Chemical or hypersensitivity pneumonitis, with flu-like symptoms (e.g., fever, chills), has also been reported. These symptoms can be delayed up to several hours after exposure. These effects are usually reversible.

**Chronic Inhalation:**

As a result of previous repeated overexposures or a single large dose, certain individuals may develop sensitization to diisocyanates (asthma or asthma-like symptoms) that may cause them to react to a later exposure to diisocyanates at levels well below the TLV or PEL. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath or asthmatic attack, could be immediate or delayed up to several hours after exposure. Extreme asthmatic reactions can be life threatening. Similar to many non-specific asthmatic responses, there are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Sensitization can be permanent. Chronic overexposure to diisocyanates has also been reported to cause lung damage (including fibrosis, decrease in lung function) that may be permanent.

**Carcinogenicity:**

No carcinogenic substances as defined by IARC, NTP and/or OSHA

Material Name: TEXIN 990 R 000000

Material Number: 516276

## 12. Ecological Information

### Ecological Data for: TEXIN 990 R 000000

No data available for this product.

## 13. Disposal Considerations

### **Waste Disposal Method**

Waste disposal should be in accordance with existing federal, state and local environmental control laws.

## 14. Transportation Information

### Land transport (DOT)

Non-Regulated

### Sea transport (IMDG)

Non-Regulated

### Air transport (ICAO/IATA)

Non-Regulated

## 15. Regulatory Information

### United States Federal Regulations

**US. Toxic Substances Control Act:** Listed on the TSCA Inventory.

No substances are subject to TSCA 12(b) export notification requirements.

**US. EPA CERCLA Hazardous Substances (40 CFR 302) Components:**

None

**SARA Section 311/312 Hazard Categories:**

Non-hazardous under Section 311/312

**US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III**

**Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A) Components:**

None

**US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III**

**Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required Components:**

None

**US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261):**

Under RCRA, it is the responsibility of the person who generates a solid waste, as defined in 40 CFR 261.2, to determine if that waste is a hazardous waste.

### State Right-To-Know Information

Material Name: TEXIN 990 R 000000

Material Number: 516276

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the SDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

**Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:**

<u>Weight percent</u>	<u>Components</u>	<u>CAS-No.</u>
>=1%	Polyurethane Polyether Elastomer	9018-04-6

**California Prop. 65:**

To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

Based on information provided by our suppliers, this product is considered "DRC Conflict Free" as defined by the SEC Conflict Minerals Final Rule (Release No. 34-67716; File No. S7-40-10; Date: 2012-08-22).

**16. Other Information**

The method of hazard communication for Covestro LLC is comprised of Product Labels and Safety Data Sheets.

Contact:	Product Safety Department
Telephone:	(412) 413-2835
SDS Number:	112000008860
Version Date:	08/28/2015
SDS Version:	2.0

This information is furnished without warranty, express or implied. This information is believed to be accurate to the best knowledge of Covestro LLC. The information in this SDS relates only to the specific material designated herein. Covestro LLC assumes no legal responsibility for use of or reliance upon the information in this SDS.

|| Changes since the last version are highlighted in the margin. This version replaces all previous versions.

# SAFETY DATA SHEET



## 1. Identification

Covestro LLC  
formerly Bayer MaterialScience LLC  
1 Covestro Circle  
Pittsburgh, PA 15205  
USA

### TRANSPORTATION EMERGENCY

CALL CHEMTREC: (800) 424-9300  
INTERNATIONAL: (703) 527-3887

### NON-TRANSPORTATION

Emergency Phone: Call Chemtrec  
Information Phone: (844) 646-0545

Product Name: TEXIN 950 000000  
Material Number: 479079  
Chemical Family: Aromatic thermoplastic polyurethane  
Use: Production of molded plastic articles

## 2. Hazards Identification

### GHS Classification

This product is not hazardous in the form in which it is shipped by the manufacturer.

### GHS Label Elements

Signal word: Warning

Hazard statements: If fine particles are generated during further processing, handling or by other means, product may form combustible dust concentrations in air.

## 3. Composition/Information on Ingredients

### Hazardous Components

There are no hazardous components above the relevant concentration limits according to OSHA HazCom 2012.

## 4. First Aid Measures

### Most Important Symptom(s)/Effect(s)

Material Name: TEXIN 950 000000

Material Number: 479079

**Acute:** Contact with heated material can cause thermal burns., Causes a slipping hazard if spilled., Vapors released from thermal decomposition may cause eye irritation with symptoms of burning and tearing, as well as respiratory tract irritation.

**Eye Contact**

In case of contact, flush eyes with plenty of lukewarm water. Get medical attention if irritation develops.

**Skin Contact**

Get medical attention if thermal burn occurs.

**Inhalation**

If inhaled, remove to fresh air.

**Ingestion**

Get medical attention.

**Notes to Physician**

In the event of possible diisocyanate exposure: Eyes: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic/steroid preparation as needed. Workplace vapors could produce reversible corneal epithelial edema impairing vision. Skin: Treat symptomatically as for thermal burn. Ingestion: Treat symptomatically. Inhalation: Treatment is essentially symptomatic. An individual having a pulmonary sensitization reaction to this material should be removed from further exposure to any diisocyanate.

## 5. Firefighting Measures

**Suitable Extinguishing Media:** Water, Foam, Dry chemical

**Unsuitable Extinguishing Media:** High Pressure Water Streams

**Fire Fighting Procedure**

Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes.

**Hazardous Decomposition Products**

By Fire and Thermal Decomposition: Carbon Dioxide, hydrogen cyanide, 4,4'-Diphenylmethane Diisocyanate (MDI) Aldehydes, Carbon monoxide, Amines, Nitriles, Nitrogen oxides (NOx), Hydrocarbons

**Unusual Fire/Explosion Hazards**

Toxic and irritating gases/fumes may be given off during burning or thermal decomposition. Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

## 6. Accidental Release Measures

**Spill and Leak Procedures**

If molten, allow material to cool and place into an appropriate marked container for disposal. Sweep up and shovel into suitable containers for disposal. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture as they are released into the atmosphere in sufficient concentrations. Avoid dispersal of dust in the air (e.g., cleaning dust from surfaces with compressed air).



## 7. Handling and Storage

### Handling/Storage Precautions

Handle in accordance with good industrial hygiene and safety practices. Wash thoroughly after handling. Avoid breathing dust. Containers should be kept tightly closed to prevent contamination. Material is hygroscopic and may absorb small amounts of atmospheric moisture. Minimize dust generation and accumulation. Routine housekeeping should be instituted to ensure that dust does not accumulate on surfaces. Solid particulate can generate electrical charging during operations such as unloading from containers and pneumatic transfer. Provide adequate precautions, such as electrical grounding and bonding, where conductive equipment is involved.

### Storage Period:

Not Established

### Storage Temperature

#### Maximum:

30 °C (86 °F)

### Substances to Avoid

None known.

## 8. Exposure Controls/Personal Protection

### Exposure Limits

Thermoplastic Polyurethane (TPU) is generally non-hazardous under ambient conditions. The following exposure limits do not apply to the product in its supplied form; however, when the product is heated (i.e., during processing or thermal decomposition conditions), there is a potential for the release of 4,4'-diphenylmethane diisocyanate (MDI) vapors.

#### 4,4'-Diphenylmethane Diisocyanate (MDI) (101-68-8)

US. ACGIH Threshold Limit Values

Time Weighted Average (TWA): 0.005 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Ceiling Limit Value: 0.02 ppm, 0.2 mg/m<sup>3</sup>

Any component which is listed in section 3 and is not listed in this section does not have a known ACGIH TLV, OSHA PEL or supplier recommended occupational exposure limit.

### Industrial Hygiene/Ventilation Measures

During normal processing, use general dilution and local exhaust as necessary to control airborne vapors, mists, dusts and thermal decomposition products below appropriate airborne concentration standards/guidelines. Special ventilation and personal protective equipment (PPE) is required to control exposure to potentially harmful decomposition products whenever a TPU is heated to temperatures above its decomposition temperature. Examples would include hot knife cutting, grinding, or sawing.

### Respiratory Protection

In the absence of sufficient general dilution or local exhaust ventilation a NIOSH approved air-supplied respirator may be needed during die cleaning, high temperature processing, purging or when thermal decomposition is suspected.

### Hand Protection

Wear heat resistant gloves when handling molten material.

**Eye Protection**

Safety glasses with side-shields

**Skin Protection**

No special skin protection requirements during normal handling and use.

**Additional Protective Measures**

Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product. Purgings should be collected as small flat thin shapes or thin strands to allow for rapid cooling.

**9. Physical and Chemical Properties**

State of Matter:	solid
Appearance:	pellets
Color:	Natural
Odor:	Odorless
Odor Threshold:	No Data Available
pH:	No Data Available
Melting Point:	220 °C (428 °F)
Boiling Point:	No Data Available
Flash Point:	250 °C (482 °F)
Evaporation Rate:	No Data Available
Flammability:	No Data Available
Lower Explosion Limit:	No Data Available
Upper Explosion Limit:	No Data Available
Vapor Pressure:	No Data Available
Vapor Density:	No Data Available
Density:	No Data Available
Relative Vapor Density:	No Data Available
Specific Gravity:	1.1
Solubility in Water:	insoluble
Partition Coefficient: n-octanol/water:	No Data Available
Auto-ignition Temperature:	> 210 °C (> 410 °F)
Decomposition Temperature:	Decomposition begins at 230 °C.
Softening point:	180 °C (356 °F)
Dynamic Viscosity:	No Data Available
Kinematic Viscosity:	No Data Available
Bulk Density:	500 - 700 kg/m <sup>3</sup>
Self Ignition:	not applicable

**10. Stability and Reactivity****Hazardous Reactions**

Hazardous polymerisation does not occur.

**Stability**

Stable

**Materials to Avoid**

None known.

**Conditions to Avoid**  
Generation of dust clouds.

**Hazardous Decomposition Products**

By Fire and Thermal Decomposition: Carbon Dioxide; hydrogen cyanide; 4,4'-Diphenylmethane Diisocyanate (MDI); Aldehydes, Carbon monoxide, Amines, Nitriles, Nitrogen oxides (NO<sub>x</sub>), Hydrocarbons

**11. Toxicological Information**

**Likely Routes of Exposure:**  
Inhalation  
Skin Contact  
Eye Contact

**Health Effects and Symptoms**

**Acute:** Contact with heated material can cause thermal burns., Causes a slipping hazard if spilled., Vapors released from thermal decomposition may cause eye irritation with symptoms of burning and tearing, as well as respiratory tract irritation.

**Toxicity Data for: TEXIN 950 000000**

In the event of material decomposition due to exceeding the decomposition temperature of this product, release of MDI may occur.

**Acute Inhalation:**

The following effects reflect the potential health hazards associated with overexposure to MDI. Diisocyanate vapors or mist at concentrations above the TLV or PEL can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Persons with a preexisting, nonspecific bronchial hyperreactivity can respond to concentrations below the TLV or PEL with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure well above the TLV or PEL may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). Chemical or hypersensitivity pneumonitis, with flu-like symptoms (e.g., fever, chills), has also been reported. These symptoms can be delayed up to several hours after exposure. These effects are usually reversible.

**Chronic Inhalation:**

As a result of previous repeated overexposures or a single large dose, certain individuals may develop sensitization to diisocyanates (asthma or asthma-like symptoms) that may cause them to react to a later exposure to diisocyanates at levels well below the TLV or PEL. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath or asthmatic attack, could be immediate or delayed up to several hours after exposure. Extreme asthmatic reactions can be life threatening. Similar to many non-specific asthmatic responses, there are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Sensitization can be permanent. Chronic overexposure to diisocyanates has also been reported to cause lung damage (including fibrosis, decrease in lung function) that may be permanent.

**Carcinogenicity:**

No carcinogenic substances as defined by IARC, NTP and/or OSHA

Material Name: TEXIN 950 000000

Material Number: 479079

## 12. Ecological Information

### Ecological Data for: TEXIN 950 000000

No data available for this product.

## 13. Disposal Considerations

### **Waste Disposal Method**

Waste disposal should be in accordance with existing federal, state and local environmental control laws.

## 14. Transportation Information

### Land transport (DOT)

Non-Regulated

### Sea transport (IMDG)

Non-Regulated

### Air transport (ICAO/IATA)

Non-Regulated

## 15. Regulatory Information

### United States Federal Regulations

**US. Toxic Substances Control Act:** Listed on the TSCA Inventory.

No substances are subject to TSCA 12(b) export notification requirements.

**US. EPA CERCLA Hazardous Substances (40 CFR 302) Components:**

None

**SARA Section 311/312 Hazard Categories:**

Non-hazardous under Section 311/312

**US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III**

**Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A) Components:**

None

**US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III**

**Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required Components:**

None

**US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261):**

Under RCRA, it is the responsibility of the person who generates a solid waste, as defined in 40 CFR 261.2, to determine if that waste is a hazardous waste.

### State Right-To-Know Information

Material Name: TEXIN 950 000000

Material Number: 479079

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the SDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

**Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:**

<u>Weight percent</u>	<u>Components</u>	<u>CAS-No.</u>
>=1%	Polyurethane Polyether Elastomer	9018-04-6

**California Prop. 65:**

To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

Based on information provided by our suppliers, this product is considered "DRC Conflict Free" as defined by the SEC Conflict Minerals Final Rule (Release No. 34-67716; File No. S7-40-10; Date: 2012-08-22).

**16. Other Information**

The method of hazard communication for Covestro LLC is comprised of Product Labels and Safety Data Sheets.

Contact:	Product Safety Department
Telephone:	(412) 413-2835
SDS Number:	112000024100
Version Date:	08/28/2015
SDS Version:	2.0

This information is furnished without warranty, express or implied. This information is believed to be accurate to the best knowledge of Covestro LLC. The information in this SDS relates only to the specific material designated herein. Covestro LLC assumes no legal responsibility for use of or reliance upon the information in this SDS.

|| Changes since the last version are highlighted in the margin. This version replaces all previous versions.

# SAFETY DATA SHEET



## 1. Identification

Covestro LLC  
formerly Bayer MaterialScience LLC  
1 Covestro Circle  
Pittsburgh, PA 15205  
USA

### TRANSPORTATION EMERGENCY

CALL CHEMTREC: (800) 424-9300  
INTERNATIONAL: (703) 527-3887

### NON-TRANSPORTATION

Emergency Phone: Call Chemtrec  
Information Phone: (844) 646-0545

Product Name: TEXIN 950LW 000000  
Material Number: 953064  
Chemical Family: Aromatic thermoplastic polyurethane  
Use: Production of molded plastic articles

## 2. Hazards Identification

### GHS Classification

This product is not hazardous in the form in which it is shipped by the manufacturer.

### GHS Label Elements

Signal word: Warning

Hazard statements: If fine particles are generated during further processing, handling or by other means, product may form combustible dust concentrations in air.

## 3. Composition/Information on Ingredients

### Hazardous Components

There are no hazardous components above the relevant concentration limits according to OSHA HazCom 2012.

## 4. First Aid Measures

### Most Important Symptom(s)/Effect(s)

Material Name: TEXIN 950LW 000000

Material Number: 953064

**Acute:** Contact with heated material can cause thermal burns., Causes a slipping hazard if spilled., Vapors released from thermal decomposition may cause eye irritation with symptoms of burning and tearing, as well as respiratory tract irritation.

**Eye Contact**

In case of contact, flush eyes with plenty of lukewarm water. Get medical attention if irritation develops.

**Skin Contact**

Get medical attention if thermal burn occurs.

**Inhalation**

If inhaled, remove to fresh air.

**Ingestion**

Get medical attention.

**Notes to Physician**

In the event of possible diisocyanate exposure: Eyes: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic/steroid preparation as needed. Workplace vapors could produce reversible corneal epithelial edema impairing vision. Skin: Treat symptomatically as for thermal burn. Ingestion: Treat symptomatically. Inhalation: Treatment is essentially symptomatic. An individual having a pulmonary sensitization reaction to this material should be removed from further exposure to any diisocyanate.

**5. Firefighting Measures**

**Suitable Extinguishing Media:** Water, Foam, Dry chemical

**Unsuitable Extinguishing Media:** High Pressure Water Streams

**Fire Fighting Procedure**

Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes.

**Hazardous Decomposition Products**

By Fire and Thermal Decomposition: Carbon Dioxide, hydrogen cyanide, 4,4'-Diphenylmethane diisocyanate (MDI) Aldehydes, Carbon monoxide, Amines, Nitriles, Nitrogen oxides (NOx), Hydrocarbons

**Unusual Fire/Explosion Hazards**

Toxic and irritating gases/fumes may be given off during burning or thermal decomposition. Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

**6. Accidental Release Measures**

**Spill and Leak Procedures**

If molten, allow material to cool and place into an appropriate marked container for disposal. Sweep up and shovel into suitable containers for disposal. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture as they are released into the atmosphere in sufficient concentrations. Avoid dispersal of dust in the air (e.g., cleaning dust from surfaces with compressed air).

## 7. Handling and Storage

### Handling/Storage Precautions

Handle in accordance with good industrial hygiene and safety practices. Wash thoroughly after handling. Avoid breathing dust. Containers should be kept tightly closed to prevent contamination. Material is hygroscopic and may absorb small amounts of atmospheric moisture. Minimize dust generation and accumulation. Routine housekeeping should be instituted to ensure that dust does not accumulate on surfaces. Solid particulate can generate electrical charging during operations such as unloading from containers and pneumatic transfer. Provide adequate precautions, such as electrical grounding and bonding, where conductive equipment is involved.

### Storage Period:

Not Established

### Storage Temperature

Maximum: 30 °C (86 °F)

### Substances to Avoid

None known.

## 8. Exposure Controls/Personal Protection

### Exposure Limits

Thermoplastic Polyurethane (TPU) is generally non-hazardous under ambient conditions. The following exposure limits do not apply to the product in its supplied form; however, when the product is heated (i.e., during processing or thermal decomposition conditions), there is a potential for the release of 4,4'-diphenylmethane diisocyanate (MDI) vapors.

### 4,4'-Diphenylmethane Diisocyanate (MDI) (101-68-8)

US. ACGIH Threshold Limit Values

Time Weighted Average (TWA): 0.005 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Ceiling Limit Value: 0.02 ppm, 0.2 mg/m<sup>3</sup>

Any component which is listed in section 3 and is not listed in this section does not have a known ACGIH TLV, OSHA PEL or supplier recommended occupational exposure limit.

### Industrial Hygiene/Ventilation Measures

During normal processing, use general dilution and local exhaust as necessary to control airborne vapors, mists, dusts and thermal decomposition products below appropriate airborne concentration standards/guidelines. Special ventilation and personal protective equipment (PPE) is required to control exposure to potentially harmful decomposition products whenever a TPU is heated to temperatures above its decomposition temperature. Examples would include hot knife cutting, grinding, or sawing.

### Respiratory Protection

In the absence of sufficient general dilution or local exhaust ventilation a NIOSH approved air-supplied respirator may be needed during die cleaning, high temperature processing, purging or when thermal decomposition is suspected.

### Hand Protection

Wear heat resistant gloves when handling molten material.



**Eye Protection**

Safety glasses with side-shields

**Skin Protection**

No special skin protection requirements during normal handling and use.

**Additional Protective Measures**

Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product. Purgings should be collected as small flat thin shapes or thin strands to allow for rapid cooling.

**9. Physical and Chemical Properties**

<b>   State of Matter:</b>	solid
<b>Appearance:</b>	pellets
<b>Color:</b>	Natural
<b>Odor:</b>	Odorless
<b>Odor Threshold:</b>	No Data Available
<b>pH:</b>	No Data Available
<b>Melting Point:</b>	220 °C (428 °F)
<b>Boiling Point:</b>	No Data Available
<b>Flash Point:</b>	250 °C (482 °F)
<b>Evaporation Rate:</b>	No Data Available
<b>Flammability:</b>	No Data Available
<b>Lower Explosion Limit:</b>	No Data Available
<b>Upper Explosion Limit:</b>	No Data Available
<b>Vapor Pressure:</b>	No Data Available
<b>Vapor Density:</b>	No Data Available
<b>Density:</b>	No Data Available
<b>Relative Vapor Density:</b>	No Data Available
<b>Specific Gravity:</b>	1.1
<b>Solubility in Water:</b>	insoluble
<b>Partition Coefficient: n-octanol/water:</b>	No Data Available
<b>Auto-ignition Temperature:</b>	> 210 °C (> 410 °F)
<b>Decomposition Temperature:</b>	Decomposition begins at 230 °C.
<b>Softening point:</b>	180 °C (356 °F)
<b>Dynamic Viscosity:</b>	No Data Available
<b>Kinematic Viscosity:</b>	No Data Available
<b>Bulk Density:</b>	500 - 700 kg/m <sup>3</sup>
<b>Self Ignition:</b>	not applicable

**10. Stability and Reactivity****Hazardous Reactions**

Hazardous polymerisation does not occur.

**Stability**

Stable

**Materials to Avoid**

None known.

**Conditions to Avoid**  
Generation of dust clouds.

**Hazardous Decomposition Products**

By Fire and Thermal Decomposition: Carbon Dioxide; hydrogen cyanide; 4,4'-Diphenylmethane Diisocyanate (MDI); Aldehydes, Carbon monoxide, Amines, Nitriles, Nitrogen oxides (NOx), Hydrocarbons

**11. Toxicological Information**

**Likely Routes of Exposure:**  
Inhalation  
Skin Contact  
Eye Contact

**Health Effects and Symptoms**

**Acute:** Contact with heated material can cause thermal burns., Causes a slipping hazard if spilled., Vapors released from thermal decomposition may cause eye irritation with symptoms of burning and tearing, as well as respiratory tract irritation.

**Toxicity Data for: TEXIN 950LW 000000**

In the event of material decomposition due to exceeding the decomposition temperature of this product, release of MDI may occur.

**Acute Inhalation:**

The following effects reflect the potential health hazards associated with overexposure to MDI. Diisocyanate vapors or mist at concentrations above the TLV or PEL can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Persons with a preexisting, nonspecific bronchial hyperreactivity can respond to concentrations below the TLV or PEL with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure well above the TLV or PEL may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). Chemical or hypersensitivity pneumonitis, with flu-like symptoms (e.g., fever, chills), has also been reported. These symptoms can be delayed up to several hours after exposure. These effects are usually reversible.

**Chronic Inhalation:**

As a result of previous repeated overexposures or a single large dose, certain individuals may develop sensitization to diisocyanates (asthma or asthma-like symptoms) that may cause them to react to a later exposure to diisocyanates at levels well below the TLV or PEL. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath or asthmatic attack, could be immediate or delayed up to several hours after exposure. Extreme asthmatic reactions can be life threatening. Similar to many non-specific asthmatic responses, there are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Sensitization can be permanent. Chronic overexposure to diisocyanates has also been reported to cause lung damage (including fibrosis, decrease in lung function) that may be permanent.

**Carcinogenicity:**

No carcinogenic substances as defined by IARC, NTP and/or OSHA

Material Name: TEXIN 950LW 000000

Material Number: 953064

## 12. Ecological Information

Ecological Data for: TEXIN 950LW 000000

No data available for this product.

## 13. Disposal Considerations

### Waste Disposal Method

Waste disposal should be in accordance with existing federal, state and local environmental control laws.

## 14. Transportation Information

### Land transport (DOT)

Non-Regulated

### Sea transport (IMDG)

Non-Regulated

### Air transport (ICAO/IATA)

Non-Regulated

## 15. Regulatory Information

### United States Federal Regulations

US. Toxic Substances Control Act: Listed on the TSCA Inventory.

No substances are subject to TSCA 12(b) export notification requirements.

US. EPA CERCLA Hazardous Substances (40 CFR 302) Components:  
None

SARA Section 311/312 Hazard Categories:  
Non-hazardous under Section 311/312

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III  
Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A) Components:  
None

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III  
Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required Components:  
None

US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes  
and Appendix VIII Hazardous Constituents (40 CFR 261):  
Under RCRA, it is the responsibility of the person who generates a solid waste, as defined in 40 CFR  
261.2, to determine if that waste is a hazardous waste.

### State Right-To-Know Information

Material Name: TEXIN 950LW 000000

Material Number: 953064

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the SDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

**Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:**

<u>Weight percent</u>	<u>Components</u>	<u>CAS-No.</u>
>=1%	Polyurethane Polyether Elastomer	9018-04-6

**California Prop. 65:**

To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

Based on information provided by our suppliers, this product is considered "DRC Conflict Free" as defined by the SEC Conflict Minerals Final Rule (Release No. 34-67716; File No. S7-40-10; Date: 2012-08-22).

**16. Other Information**

The method of hazard communication for Covestro LLC is comprised of Product Labels and Safety Data Sheets.

Contact:	Product Safety Department
Telephone:	(412) 413-2835
SDS Number:	112000029509
Version Date:	08/28/2015
SDS Version:	2.0

This information is furnished without warranty, express or implied. This information is believed to be accurate to the best knowledge of Covestro LLC. The information in this SDS relates only to the specific material designated herein. Covestro LLC assumes no legal responsibility for use of or reliance upon the information in this SDS.

|| Changes since the last version are highlighted in the margin. This version replaces all previous versions.

# SAFETY DATA SHEET



## 1. Identification

Covestro LLC  
formerly Bayer MaterialScience LLC  
1 Covestro Circle  
Pittsburgh, PA 15205  
USA

### TRANSPORTATION EMERGENCY

CALL CHEMTREC: (800) 424-9300  
INTERNATIONAL: (703) 527-3887

### NON-TRANSPORTATION

Emergency Phone: Call Chemtrec  
Information Phone: (844) 646-0545

Product Name: TEXIN 985 000000  
Material Number: 516217  
Chemical Family: Aromatic thermoplastic polyurethane  
Use: Production of molded plastic articles

## 2. Hazards Identification

### GHS Classification

This product is not hazardous in the form in which it is shipped by the manufacturer.

### GHS Label Elements

Signal word: Warning

Hazard statements: If fine particles are generated during further processing, handling or by other means, product may form combustible dust concentrations in air.

## 3. Composition/Information on Ingredients

### Hazardous Components

There are no hazardous components above the relevant concentration limits according to OSHA HazCom 2012.

## 4. First Aid Measures

### Most Important Symptom(s)/Effect(s)

Material Name: TEXIN 985 000000

Material Number: 516217

**Acute:** Contact with heated material can cause thermal burns., Causes a slipping hazard if spilled., Vapors released from thermal decomposition may cause eye irritation with symptoms of burning and tearing, as well as respiratory tract irritation.

**Eye Contact**

In case of contact, flush eyes with plenty of lukewarm water. Get medical attention if irritation develops.

**Skin Contact**

Get medical attention if thermal burn occurs.

**Inhalation**

If inhaled, remove to fresh air.

**Ingestion**

Get medical attention.

**Notes to Physician**

In the event of possible diisocyanate exposure: Eyes: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic/steroid preparation as needed. Workplace vapors could produce reversible corneal epithelial edema impairing vision. Skin: Treat symptomatically as for thermal burn. Ingestion: Treat symptomatically. Inhalation: Treatment is essentially symptomatic. An individual having a pulmonary sensitization reaction to this material should be removed from further exposure to any diisocyanate.

**5. Firefighting Measures**

**Suitable Extinguishing Media:** Water, Foam, Dry chemical

**Unsuitable Extinguishing Media:** High Pressure Water Streams

**Fire Fighting Procedure**

Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes.

**Hazardous Decomposition Products**

By Fire and Thermal Decomposition: Carbon Dioxide, hydrogen cyanide, 4,4'-Diphenylmethane Diisocyanate (MDI) Aldehydes, Carbon monoxide, Amines, Nitriles, Nitrogen oxides (NOx), Hydrocarbons

**Unusual Fire/Explosion Hazards**

Toxic and irritating gases/fumes may be given off during burning or thermal decomposition. Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

**6. Accidental Release Measures**

**Spill and Leak Procedures**

If molten, allow material to cool and place into an appropriate marked container for disposal. Sweep up and shovel into suitable containers for disposal. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture as they are released into the atmosphere in sufficient concentrations. Avoid dispersal of dust in the air (e.g., cleaning dust from surfaces with compressed air).

## 7. Handling and Storage

### Handling/Storage Precautions

Handle in accordance with good industrial hygiene and safety practices. Wash thoroughly after handling. Avoid breathing dust. Containers should be kept tightly closed to prevent contamination. Material is hygroscopic and may absorb small amounts of atmospheric moisture. Minimize dust generation and accumulation. Routine housekeeping should be instituted to ensure that dust does not accumulate on surfaces. Solid particulate can generate electrical charging during operations such as unloading from containers and pneumatic transfer. Provide adequate precautions, such as electrical grounding and bonding, where conductive equipment is involved.

### Storage Period:

Not Established

### Storage Temperature

Maximum: 30 °C (86 °F)

### Substances to Avoid

None known.

## 8. Exposure Controls/Personal Protection

### Exposure Limits

Thermoplastic Polyurethane (TPU) is generally non-hazardous under ambient conditions. The following exposure limits do not apply to the product in its supplied form; however, when the product is heated (i.e., during processing or thermal decomposition conditions), there is a potential for the release of 4,4'-diphenylmethane diisocyanate (MDI) vapors.

#### 4,4'-Diphenylmethane Diisocyanate (MDI) (101-68-8)

US. ACGIH Threshold Limit Values

Time Weighted Average (TWA): 0.005 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Ceiling Limit Value: 0.02 ppm, 0.2 mg/m<sup>3</sup>

Any component which is listed in section 3 and is not listed in this section does not have a known ACGIH TLV, OSHA PEL or supplier recommended occupational exposure limit.

### Industrial Hygiene/Ventilation Measures

During normal processing, use general dilution and local exhaust as necessary to control airborne vapors, mists, dusts and thermal decomposition products below appropriate airborne concentration standards/guidelines. Special ventilation and personal protective equipment (PPE) is required to control exposure to potentially harmful decomposition products whenever a TPU is heated to temperatures above its decomposition temperature. Examples would include hot knife cutting, grinding, or sawing.

### Respiratory Protection

In the absence of sufficient general dilution or local exhaust ventilation a NIOSH approved air-supplied respirator may be needed during die cleaning, high temperature processing, purging or when thermal decomposition is suspected.

### Hand Protection

Wear heat resistant gloves when handling molten material.

**Eye Protection**

Safety glasses with side-shields

**Skin Protection**

No special skin protection requirements during normal handling and use.

**Additional Protective Measures**

Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product. Purgings should be collected as small flat thin shapes or thin strands to allow for rapid cooling.

**9. Physical and Chemical Properties**

<b>State of Matter:</b>	solid
<b>Appearance:</b>	pellets
<b>Color:</b>	Natural
<b>Odor:</b>	Odorless
<b>Odor Threshold:</b>	No Data Available
<b>pH:</b>	No Data Available
<b>Melting Point:</b>	220 °C (428 °F)
<b>Boiling Point:</b>	No Data Available
<b>Flash Point:</b>	250 °C (482 °F)
<b>Evaporation Rate:</b>	No Data Available
<b>Flammability:</b>	No Data Available
<b>Lower Explosion Limit:</b>	No Data Available
<b>Upper Explosion Limit:</b>	No Data Available
<b>Vapor Pressure:</b>	No Data Available
<b>Vapor Density:</b>	No Data Available
<b>Density:</b>	No Data Available
<b>Relative Vapor Density:</b>	No Data Available
<b>Specific Gravity:</b>	1.1
<b>Solubility in Water:</b>	insoluble
<b>Partition Coefficient: n-octanol/water:</b>	No Data Available
<b>Auto-ignition Temperature:</b>	> 210 °C (> 410 °F)
<b>Decomposition Temperature:</b>	Decomposition begins at 230 °C.
<b>Softening point:</b>	180 °C (356 °F)
<b>Dynamic Viscosity:</b>	No Data Available
<b>Kinematic Viscosity:</b>	No Data Available
<b>Bulk Density:</b>	500 - 700 kg/m <sup>3</sup>
<b>Self Ignition:</b>	not applicable

**10. Stability and Reactivity****Hazardous Reactions**

Hazardous polymerisation does not occur.

**Stability**

Stable

**Materials to Avoid**

None known.



**Conditions to Avoid**  
Generation of dust clouds.

**Hazardous Decomposition Products**

By Fire and Thermal Decomposition: Carbon Dioxide; hydrogen cyanide; 4,4'-Diphenylmethane Diisocyanate (MDI); Aldehydes, Carbon monoxide, Amines, Nitriles, Nitrogen oxides (NOx), Hydrocarbons

**11. Toxicological Information**

**Likely Routes of Exposure:**  
Inhalation  
Skin Contact  
Eye Contact

**Health Effects and Symptoms**

**Acute:** Contact with heated material can cause thermal burns., Causes a slipping hazard if spilled., Vapors released from thermal decomposition may cause eye irritation with symptoms of burning and tearing, as well as respiratory tract irritation.

**Toxicity Data for: TEXIN 985 000000**

In the event of material decomposition due to exceeding the decomposition temperature of this product, release of MDI may occur.

**Acute Inhalation:**

The following effects reflect the potential health hazards associated with overexposure to MDI. Diisocyanate vapors or mist at concentrations above the TLV or PEL can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Persons with a preexisting, nonspecific bronchial hyperreactivity can respond to concentrations below the TLV or PEL with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure well above the TLV or PEL may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). Chemical or hypersensitivity pneumonitis, with flu-like symptoms (e.g., fever, chills), has also been reported. These symptoms can be delayed up to several hours after exposure. These effects are usually reversible.

**Chronic Inhalation:**

As a result of previous repeated overexposures or a single large dose, certain individuals may develop sensitization to diisocyanates (asthma or asthma-like symptoms) that may cause them to react to a later exposure to diisocyanates at levels well below the TLV or PEL. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath or asthmatic attack, could be immediate or delayed up to several hours after exposure. Extreme asthmatic reactions can be life threatening. Similar to many non-specific asthmatic responses, there are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Sensitization can be permanent. Chronic overexposure to diisocyanates has also been reported to cause lung damage (including fibrosis, decrease in lung function) that may be permanent.

**Carcinogenicity:**

No carcinogenic substances as defined by IARC, NTP and/or OSHA

## 12. Ecological Information

Ecological Data for: TEXIN 985 000000

No data available for this product.

## 13. Disposal Considerations

### **Waste Disposal Method**

Waste disposal should be in accordance with existing federal, state and local environmental control laws.

## 14. Transportation Information

### Land transport (DOT)

Non-Regulated

### Sea transport (IMDG)

Non-Regulated

### Air transport (ICAO/IATA)

Non-Regulated

## 15. Regulatory Information

### United States Federal Regulations

**US. Toxic Substances Control Act:** Listed on the TSCA Inventory.

No substances are subject to TSCA 12(b) export notification requirements.

**US. EPA CERCLA Hazardous Substances (40 CFR 302) Components:**  
None

**SARA Section 311/312 Hazard Categories:**  
Non-hazardous under Section 311/312

**US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A) Components:**  
None

**US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required Components:**  
None

**US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261):**  
Under RCRA, it is the responsibility of the person who generates a solid waste, as defined in 40 CFR 261.2, to determine if that waste is a hazardous waste.

### State Right-To-Know Information

Material Name: TEXIN 985 000000

Material Number: 516217

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the SDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

**Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:**

<u>Weight percent</u>	<u>Components</u>	<u>CAS-No.</u>
>=1%	Polyurethane Polyether Elastomer	9018-04-6

**California Prop. 65:**

To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

Based on information provided by our suppliers, this product is considered "DRC Conflict Free" as defined by the SEC Conflict Minerals Final Rule (Release No. 34-67716; File No. S7-40-10; Date: 2012-08-22).

**16. Other Information**

The method of hazard communication for Covestro LLC is comprised of Product Labels and Safety Data Sheets.

Contact:	Product Safety Department
Telephone:	(412) 413-2835
SDS Number:	112000022660
Version Date:	08/28/2015
SDS Version:	2.0

This information is furnished without warranty, express or implied. This information is believed to be accurate to the best knowledge of Covestro LLC. The information in this SDS relates only to the specific material designated herein. Covestro LLC assumes no legal responsibility for use of or reliance upon the information in this SDS.

|| Changes since the last version are highlighted in the margin. This version replaces all previous versions.



**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Individual Tank Emission Totals**

**Emissions Report for: Annual**

**Polymeg 25K - Vertical Fixed Roof Tank**

		Losses(lbs)	
Components	Working Loss	Breathing Loss	Total Emissions
Polymeg 1000	31.04	0.00	31.04



**ATTACHMENT E**  
**Calculations**

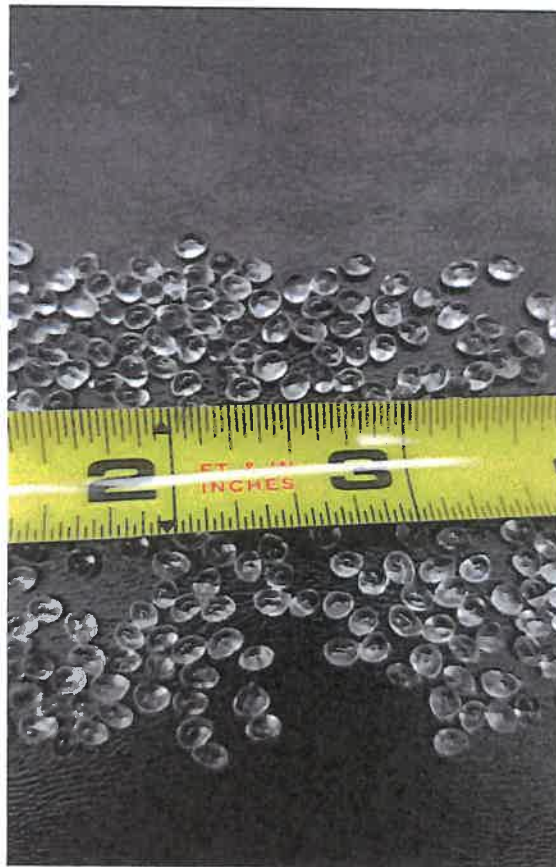
## CALCULATIONS - PHASE 1

Phase I of the project consists of de-bottlenecking the storage and packaging sections of the process. This will be done by optimizing the pellet transfer system and changing the configuration of the packaging system to reduce packaging time.

The product is a solid and hence, only particulate emissions are emitted from the storage and packaging sections. Since the blower sizes will not increase it is anticipated that this project will not impact particulate emissions.

The product silos are equipped with blowers that utilize air to constantly recycle the Texin pellets in order to keep the product dry. Air is also used to convey the pellets from the extruders to the silos and then to the packaging lines.

If the product was a powder there might be a potential to increase particulate emissions, however, the Texin products are plastic pellets which are relatively large in size. A picture of the Texin pellets is shown below. In addition these pellets are cut in an underwater bath so there are no shards of pellets that enter the air stream. The main source of PM is from abrasion of the pellets during the recycle operation. Since the air handling equipment is not changing in size and the volume of air is not increasing. Hence, the amount of pellets that is able to be physically moved by the air stream is unaffected and the fines generated by any particulate abrasion is constant.





## CALCULATIONS - PHASE 2

### Emissions Baseline

In 2008 Covestro (formerly Bayer) submitted an application for a HAP Synthetic Minor that was subsequently approved by the WVDEP. In that submittal Emissions from Line #1 were calculated and are summarized in the table below. These emissions comprise emissions from the Line #1 extruder plus the associated process equipment (run tanks, hold tanks, etc.) Since the associated equipment is shared among the 3 extruders, the emissions have been proportioned among the extruders based on production capacities to represent the total emissions from Line #1. Please Note: The emissions listed do not include emissions from storage tanks, which will be handled separately (See Phase 3 Calculations)

#### CURRENT ORGANIC EMISSIONS

	lb/hr	lb/yr	TPY
4,4-MDI	0.0105	92.0	0.046
VOCs	0.0267	234.0	0.117
Ethylene Glycol	0.000365	3.2	0.0016
<b>TOTAL HAPS</b>	<b>0.01087</b>	<b>95.2</b>	<b>0.0476</b>
<b>TOTAL VOCs</b>	<b>0.0376</b>	<b>329.2</b>	<b>0.1646</b>

### Emissions After Project

Phase 2 of the project will replace the Line #1 extruder with a larger one which

The organic emissions would increase proportionally.

#### PROPOSED ORGANIC EMISSIONS

	lb/hr	lb/yr	TPY
4,4-MDI	0.02268	197.8	0.099
VOCs	0.0574	503.1	0.252
Ethylene Glycol	0.000785	6.9	0.00344
<b>TOTAL HAPS</b>	<b>0.02337</b>	<b>204.7</b>	<b>0.10234</b>
<b>TOTAL VOCs</b>	<b>0.0808</b>	<b>707.8</b>	<b>0.35389</b>

### Change in Emissions

#### NET INCREASE IN ORGANIC EMISSIONS

	lb/hr	lb/yr	TPY
4,4-MDI	0.01208	105.8	0.053
VOCs	0.03072	269.1	0.135
Ethylene Glycol	0.00042	3.7	0.00184
<b>TOTAL HAPS</b>	<b>0.01250</b>	<b>109.5</b>	<b>0.0547</b>
<b>TOTAL VOCs</b>	<b>0.0432</b>	<b>378.6</b>	<b>0.1893</b>

### CALCULATIONS - PHASE 3

Currently the Resin is stored in a 20,000 gallon storage tank. In order to support the increased production capacity the storage will be shifted to an 80,000 gallon storage tank that is equipped for railcar deliveries. The calculations were performed using Tanks 4.09d. A copy of the output is included in the section.

#### Emissions Baseline

##### CURRENT ORGANIC EMISSIONS

	lb/hr	lb/yr	TPY
VOCs	0.0035	31	0.0156
<b>TOTAL HAPS</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>TOTAL VOCs</b>	<b>0.0035</b>	<b>31</b>	<b>0.0156</b>

#### Emissions After Project

##### PROPOSED ORGANIC EMISSIONS

	lb/hr	lb/yr	TPY
VOCs	0.0046	40	0.02
<b>TOTAL HAPS</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>TOTAL VOCs</b>	<b>0.0046</b>	<b>40</b>	<b>0.02</b>

#### Change in Emissions

##### NET INCREASE IN ORGANIC EMISSIONS

	lb/hr	lb/yr	TPY
VOCs	0.011	9	0.0044
<b>TOTAL HAPS</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>TOTAL VOCs</b>	<b>0.011</b>	<b>9</b>	<b>0.0044</b>

### TOTAL CHANGE IN EMISSIONS

The tables below represent the emission changes from the current baseline.

#### NET INCREASE IN VOC EMISSIONS

	lb/hr	lb/yr	TPY
Phase 1	0	0	0
Phase 2	0.0432	378.6	0.1893
<b>Phase 3</b>	<b>0.011</b>	<b>9</b>	<b>0.0044</b>
<b>TOTAL VOCs</b>	<b>0.0542</b>	<b>387.6</b>	<b>0.1937</b>

#### NET INCREASE IN HAP EMISSIONS

	lb/hr	lb/yr	TPY
Phase 1	0	0	0
Phase 2	0.01250	109.5	0.0547
<b>Phase 3</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>TOTAL HAPs</b>	<b>0.01250</b>	<b>109.5</b>	<b>0.0547</b>

This is less than the limits listed in 45 CSR 13.2.17 -

VOCs - < 6 lb/hr, <144 lb/day and < 10 TPY

HAPs - < 2 lb/hr and <5 TPY

As such no Reg 13 permit is required and the Permit Determination Form is the proper paperwork to be filed.

#### SUGGESTED CHANGES IN TITLE V PERMIT

Covestro is suggesting changing the emission factor listed in the Title V Permit R30-05100009-201 Condition 8.4.5 to 0.029 lb HAPS/unit produced for Line #1 and modifying condition 8.1.8 to "...shall not exceed 0.24 tpy....". These changes will not impact the facility-wide HAP requirement contained in Conditions 3.1.10 and 3.2.1 of the Title V permit since the site-wide HAP emissions are typically less than 5 TPY.

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Tank Identification and Physical Characteristics**

**Identification**  
User Identification: Polymeg 80K  
City:  
State:  
Company:  
Type of Tank: Vertical Fixed Roof Tank  
Description:  
  
**Tank Dimensions**  
Shell Height (ft): 30.00  
Diameter (ft): 22.00  
Liquid Height (ft): 30.00  
Avg. Liquid Height (ft): 15.00  
Volume (gallons): 85,307.99  
Turnovers:  
Net Throughput(gall/yr):  
Is Tank Heated (y/n): Y  
  
**Paint Characteristics**  
Shell Color/Shade: White/White  
Shell Condition: Good  
Roof Color/Shade: White/White  
Roof Condition: Good  
  
**Roof Characteristics**  
Type: Dome  
Height (ft): 2.00  
Radius (ft) (Dome Roof): 22.00  
  
**Breather Vent Settings**  
Vacuum Settings (psig): 0.00  
Pressure Settings (psig): 0.00

Meteorological Data used in Emissions Calculations: Pittsburgh, Pennsylvania (Avg Atmospheric Pressure = 14.11 psia)

**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Liquid Contents of Storage Tank**

**Polymeg 80K - Vertical Fixed Roof Tank**

Mixture/Component	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol. Weight	Liquid Mass Fract	Vapor Mass Fract	Mol. Weight	Basis for Vapor Pressure Calculations
	Month	Avg	Min	Max	Avg	Min	Max					
Polymeg 1000	All	120.00	120.00	120.00	120.00	0.0016	0.0016	0.0016	1,000.0000		1,000.00	

.. 1 4  
3 2

# TANKS 4.0.9d Emissions Report - Detail Format Detail Calculations (AP-42)

## Polymeg 80K - Vertical Fixed Roof Tank

<b>Annual Emission Calculations</b>	
Standing Losses (lb):	0.0000
Vapor Space Volume (cu ft):	6,086.3122
Vapor Density (lb/cu ft):	0.0003
Vapor Space Expansion Factor:	0.0000
Vented Vapor Saturation Factor:	0.9986
<b>Tank Vapor Space Volume:</b>	
Vapor Space Volume (cu ft):	6,086.3122
Tank Diameter (ft):	22.0000
Vapor Space Outage (ft):	16.0110
Tank Shell Height (ft):	30.0000
Average Liquid Height (ft):	15.0000
Roof Outage (ft):	1.0110
<b>Roof Outage (Dome Roof)</b>	
Roof Outage (ft):	1.0110
Dome Radius (ft):	22.0000
Shell Radius (ft):	11.0000
<b>Vapor Density</b>	
Vapor Density (lb/cu ft):	0.0003
Vapor Molecular Weight (lb/lb-mole):	1,000.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0016
Daily Avg. Liquid Surface Temp. (deg. R):	579.6700
Daily Average Ambient Temp. (deg. F):	50.3083
Ideal Gas Constant R (psia cu ft / (lb-mol-deg R):	10.731
Liquid Bulk Temperature (deg. R):	579.6700
Tank Paint Solar Absorptance (Shell):	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700
Daily Total Solar Insulation Factor (Btu/sq ft day):	1,202.9556
<b>Vapor Space Expansion Factor</b>	
Vapor Space Expansion Factor:	0.0000
Daily Vapor Temperature Range (deg. R):	0.0000
Daily Vapor Pressure Range (psia):	0.0000
Breather Vent Press. Setting Range (psia):	0.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0016
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0016
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0016
Daily Avg. Liquid Surface Temp. (deg R):	579.6700
Daily Min. Liquid Surface Temp. (deg R):	579.6700
Daily Max. Liquid Surface Temp. (deg R):	579.6700
Daily Ambient Temp. Range (deg. R):	18.1500
<b>Vented Vapor Saturation Factor</b>	
Vented Vapor Saturation Factor:	0.9986
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0016
Vapor Space Outage (ft):	16.0110
Working Losses (lb):	39.3181
Vapor Molecular Weight (mol-b-mole):	1,000.0000

Vapor Pressure at Daily Average Liquid

Surface Temperature (psia):  
 Annual Net Throughput (gal/yr.):  
 Annual Turnovers:  
 Turnover Factor:  
 Maximum Liquid Volume (gal):  
 Maximum Liquid Height (ft):  
 Tank Diameter (ft):  
 Working Loss Product Factor:

0.0016  
  
 85,307,9870  
 30.0000  
 22.0000  
 1.0000

Total Losses (lb):

39,3181





**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Individual Tank Emission Totals**

**Emissions Report for: Annual**

**Polymeg 80K - Vertical Fixed Roof Tank**

Components	Losses(lbs)		Total Emissions
	Working Loss	Breathing Loss	
Polymeg 1000	39.32	0.00	39.32



**TANKS 4.0.9d**  
**Emissions Report - Detail Format**  
**Tank Identification and Physical Characteristics**

<b>Identification</b>	
User Identification:	Polymeg 25K
City:	
State:	
Company:	
Type of Tank:	Vertical Fixed Roof Tank
Description:	
<b>Tank Dimensions</b>	
Shell Height (ft):	32.50
Diameter (ft):	11.50
Liquid Height (ft) :	32.50
Avg. Liquid Height (ft):	16.00
Volume (gallons):	25,252.37
Turnovers:	
Net Throughput(gal/yr):	
Is Tank Heated (y/n):	Y
<b>Paint Characteristics</b>	
Shell Color/Shade:	White/White
Shell Condition:	Good
Roof Color/Shade:	White/White
Roof Condition:	Good
<b>Roof Characteristics</b>	
Type:	Dome
Height (ft)	2.00
Radius (ft) (Dome Roof)	11.50
<b>Breather Vent Settings</b>	
Vacuum Settings (psig):	0.00
Pressure Settings (psig)	0.00

Meteorological Data used in Emissions Calculations: Pittsburgh, Pennsylvania (Avg Atmospheric Pressure = 14.11 psia)

# TANKS 4.0.9d Emissions Report - Detail Format Liquid Contents of Storage Tank

## Polymeg 25K - Vertical Fixed Roof Tank

Mixture/Component	Month	Daily Liquid Surf. Temperature (deg F)			Liquid Bulk Temp (deg F)	Vapor Pressure (psia)			Vapor Mol Weight	Liquid Mass Fract	Vapor Mass Fract	Mol Weight	Basis for Vapor Pressure Calculations
		Avg	Min	Max		Avg	Min	Max					
Polymeg 1000	All	120.00	120.00	120.00	120.00	0.0016	0.0016	0.0016	1,000.0000			1,000.00	

12/12/2016

# TANKS 4.0.9d

## Emissions Report - Detail Format

### Detail Calculations (AP-42)

#### Polymeg 25K - Vertical Fixed Roof Tank

<b>Annual Emission Calculations</b>	
Standing Losses (lb):	0.0000
Vapor Space Volume (cu ft):	1,821.8947
Vapor Density (lb/cu ft):	0.0003
Vapor Space Expansion Factor:	0.0000
Vented Vapor Saturation Factor:	0.9985
<b>Tank Vapor Space Volume:</b>	
Vapor Space Volume (cu ft):	1,821.8947
Tank Diameter (ft):	11.5000
Vapor Space Outage (ft):	17.5403
Tank Shell Height (ft):	32.5000
Average Liquid Height (ft):	16.0000
Roof Outage (ft):	1.0403
<b>Roof Outage (Dome Roof)</b>	
Roof Outage (ft):	1.0403
Dome Radius (ft):	11.5000
Shell Radius (ft):	5.7500
<b>Vapor Density</b>	
Vapor Density (lb/cu ft):	0.0003
Vapor Molecular Weight (lb/lb-mole):	1,000.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0016
Daily Avg. Liquid Surface Temp. (deg. F):	579.6700
Daily Average Ambient Temp. (deg. F):	50.3083
Ideal Gas Constant R (psia-cuft / (lb-mol-deg R):	10.731
Liquid Bulk Temperature (deg. R):	579.6700
Tank Paint Solar Absorptance (Shell):	0.1700
Tank Paint Solar Absorptance (Roof):	0.1700
Daily Total Solar Insolation Factor (Btu/deg ft day):	1,202.9556
<b>Vapor Space Expansion Factor</b>	
Vapor Space Expansion Factor:	0.0000
Daily Vapor Temperature Range (deg. R):	0.0000
Daily Vapor Pressure Range (psia):	0.0000
Breather Vent Press. Setting Range (psia):	0.0000
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0016
Vapor Pressure at Daily Minimum Liquid Surface Temperature (psia):	0.0016
Vapor Pressure at Daily Maximum Liquid Surface Temperature (psia):	0.0016
Daily Avg. Liquid Surface Temp. (deg. R):	579.6700
Daily Min. Liquid Surface Temp. (deg. R):	579.6700
Daily Max. Liquid Surface Temp. (deg. R):	579.6700
Daily Ambient Temp. Range (deg. R):	19.1500
<b>Vented Vapor Saturation Factor</b>	
Vented Vapor Saturation Factor:	0.9985
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	0.0016
Vapor Space Outage (ft):	17.5403
<b>Working Losses (lb):</b>	
Vapor Molecular Weight (lb/lb-mole):	31.0406
Vapor Pressure at Daily Average Liquid Surface Temperature (psia):	1,000.0000
Annual Net Throughput (gallyr.):	0.0016
Annual Turnovers:	
Turnover Factor:	
Maximum Liquid Volume (gal):	25,252.3586
Maximum Liquid Height (ft):	32.5000

TANKS 4.0 Report

Tank Diameter (ft):	11.5000
Working Loss Product Factor:	1.0000
Total Losses (lb):	311.0408